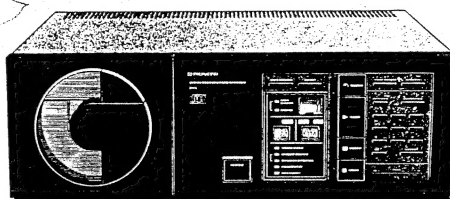


Service Manual



ORDER NO.
VRT-011-0

COMPACT DISC PLAYER

P-D1

HEO/S

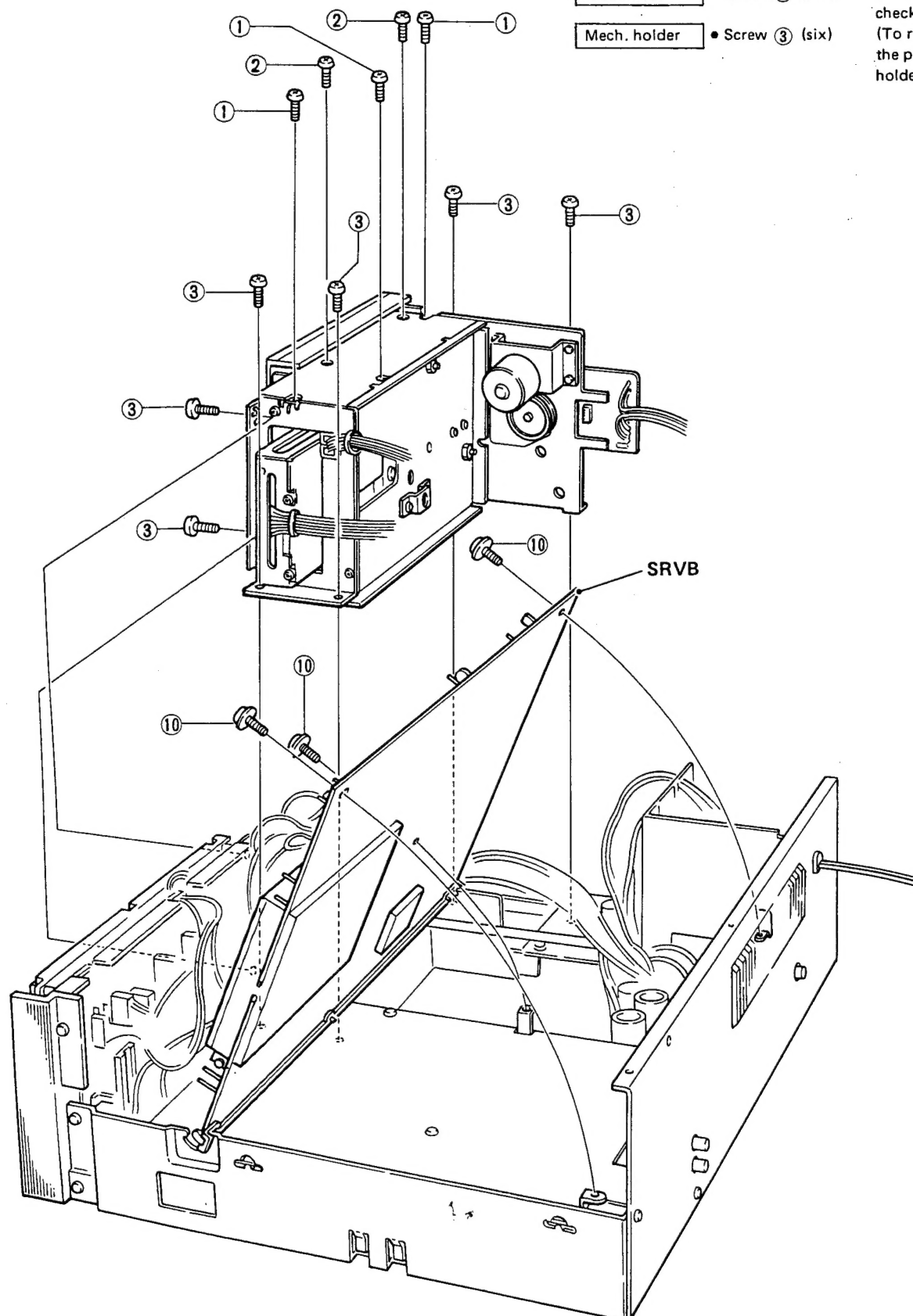
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1. DISASSEMBLY

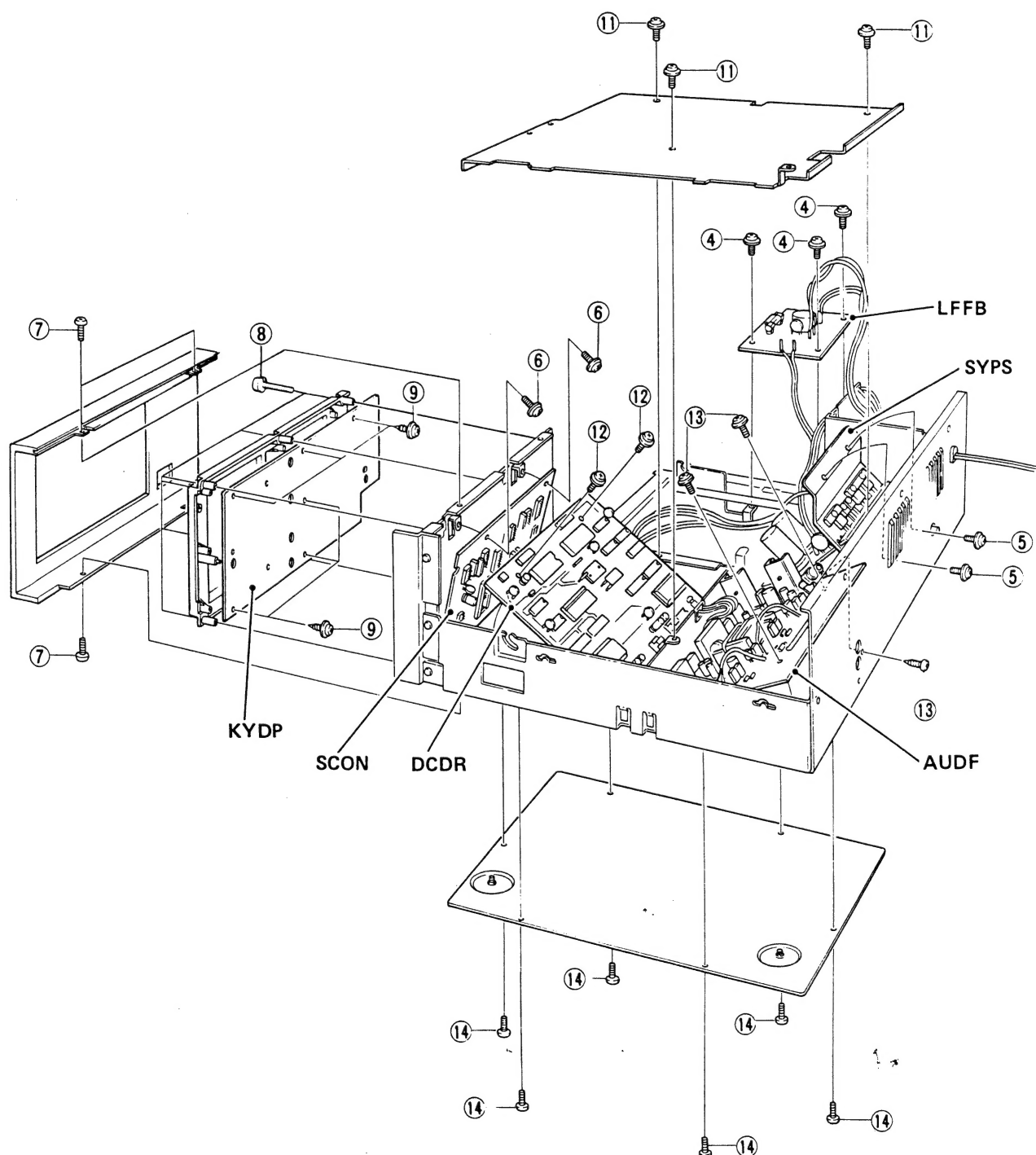
1. Disc Mechanism Assembly

Part	Procedure	Purpose
Cover	• Screw ① (three)	(To check carriage assembly, etc.)
Escutcheon	• Screw ② (two)	(To measure LD power, check objective lens, etc.)
Mech. holder	• Screw ③ (six)	(To repair HALC or replace the pickup and mechanism holder.)



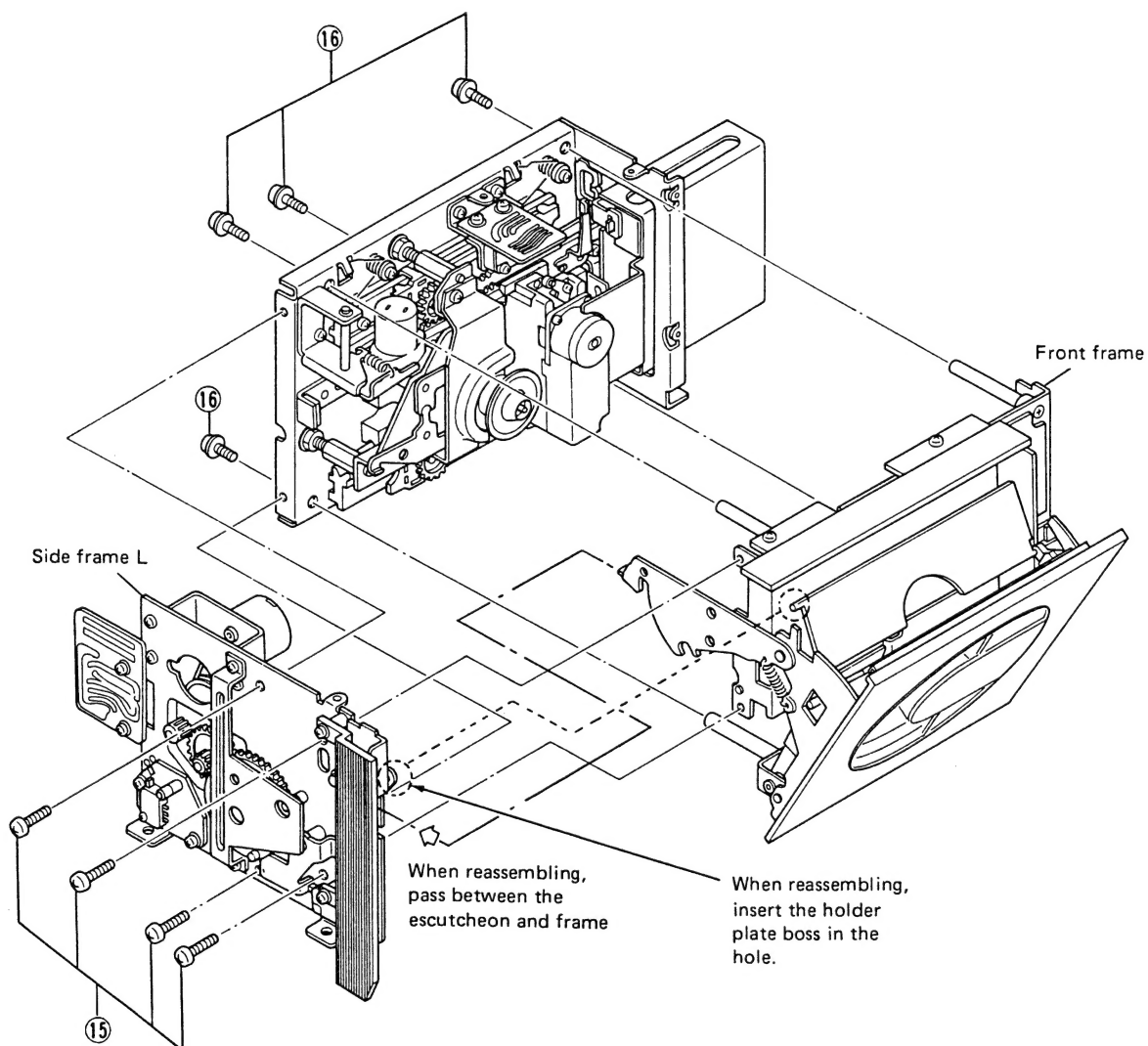
2. Circuit Boards

Part	Procedure	Purpose	Part	Procedure	Purpose
LFFB	• Screw ④ (three)	(For repairs)	SRVB	• Screw ⑩ (three)	(For adjustments and repairs and for access to DCDR and AUDF)
SYPS	• Screw ⑤ (two)	(For repairs)	Shielding cover	• Screw ⑪ (three)	(For access to DCDR and AUDF)
SCON	• Screw ⑥ (two)	(To check the system and for repair)	DCDR	• Screw ⑫ (two)	(For repairs)
Front panel	• Screw ⑦ (four)		AUDF	• Screw ⑬ (three)	(For repairs)
Control panel	• Screw ⑧ (six)		Bottom cover	• Screw ⑭ (six)	(For access to DCDR and AUDF)
KYDP	• Screw ⑨ (six)	(For repairs)			



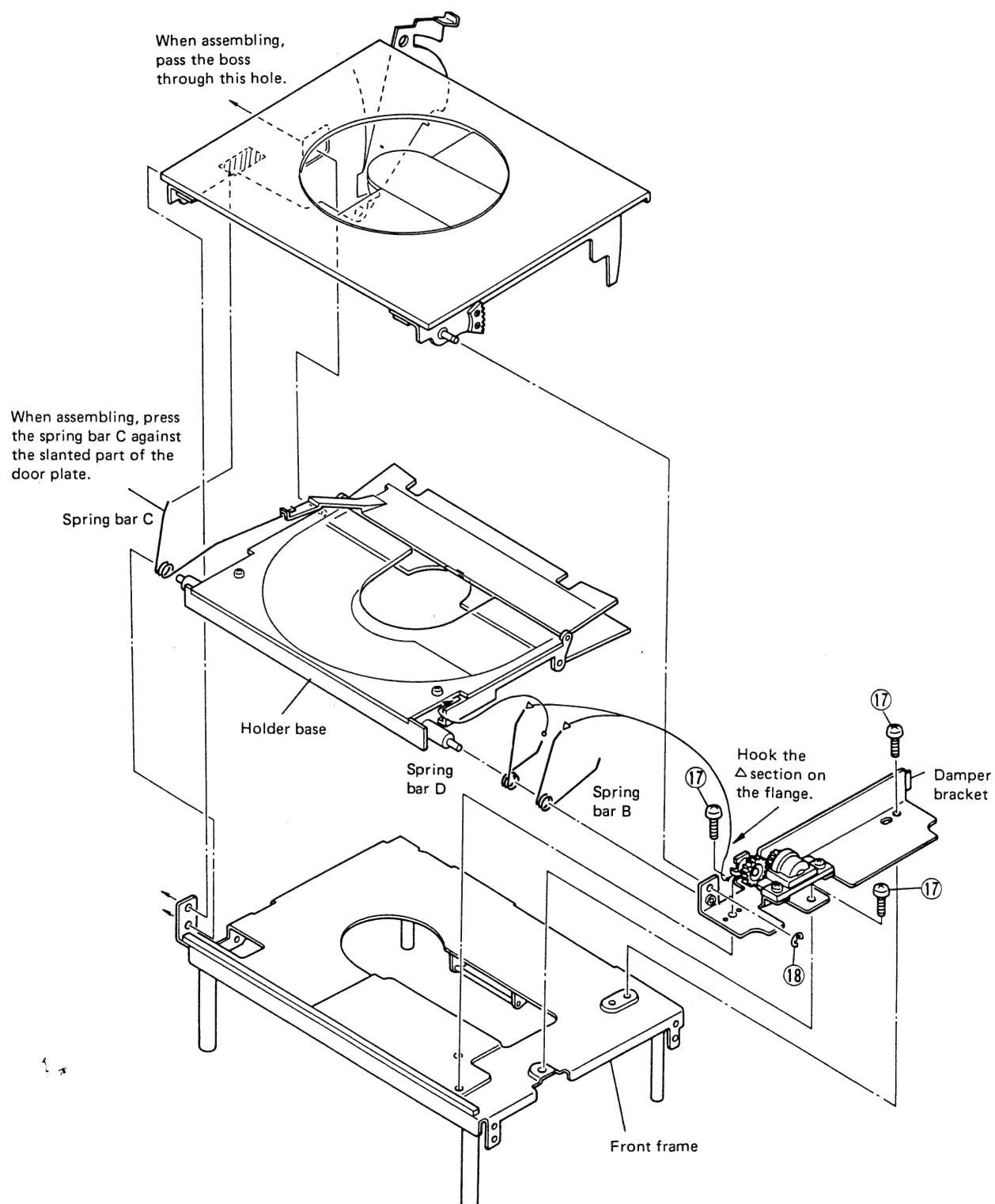
3. Disassembly from the Mechanism Holder

Part	Procedure	Purpose
Side frame L	• Screw ⑮ (four)	(For access to the spindle motor and pickup)
Front frame	• Screw ⑯ (four)	(For access to the spindle motor and pickup and to replace the door panel)



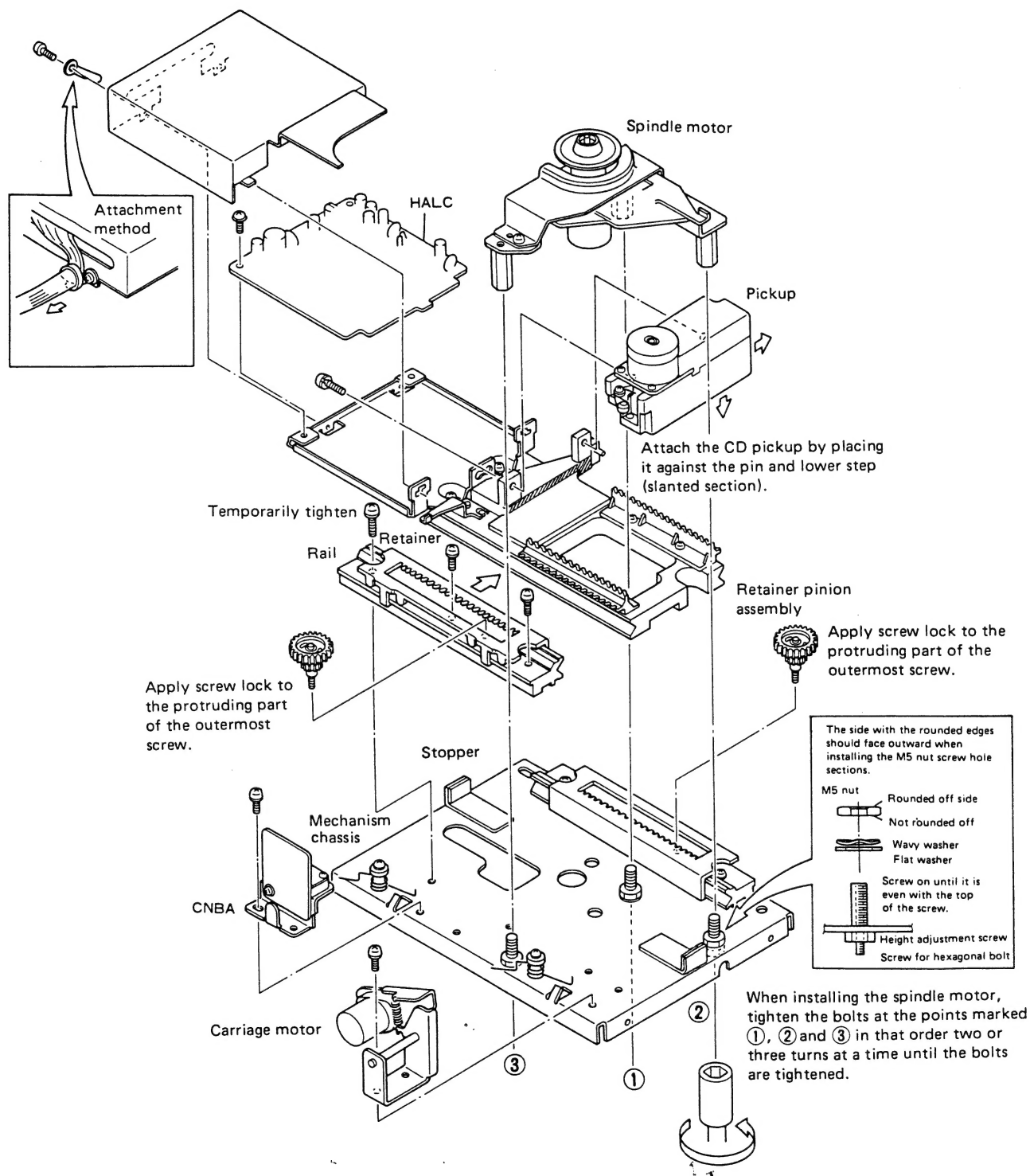
4. Disassembly from the Front Frame

Part	Procedure	Purpose
Damper bracket	• Screw ⑰ (three)	
Door panel section	• E-ring ⑱ (one)	(To replace the door panel)
Disc holder section		(To replace the disc holder)



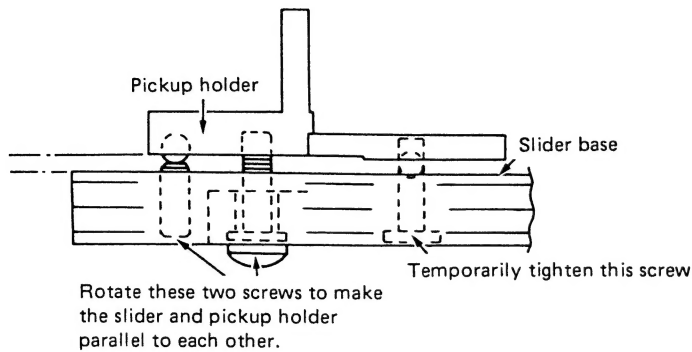
2. MECHANICAL ADJUSTMENT

1. ASSEMBLING THE MECHANISM ASSEMBLY



1. Rough Adjustment of Pickup Holder Angle

- This procedure is necessary only when the pickup holder is way out of line. Do not perform if only a minor adjustment is needed.



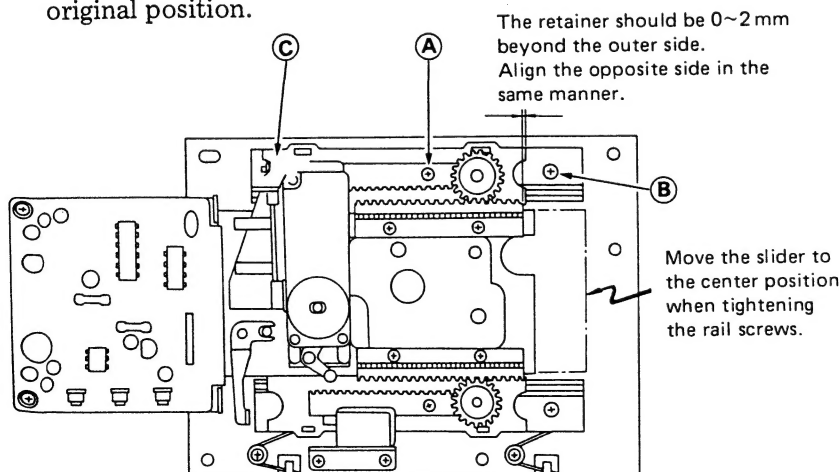
2. Tightening the Upper Rail Screws

- 1) Attach the rail and slider, temporarily tightening all three screws.
- 2) Hook the plate spring on the flange on top of the mechanism chassis and press the rail onto the slider.
- 3) Place the slider in the center position and firmly tighten the three screws A, B and C in that order.

Note: Do not loosen the bottom rail (the one held in place with the red screws) or the stoppers.

3. Aligning the Retainer

- 1) Retainer alignment is performed with the spindle motor assembly removed from the mechanism chassis.
- 2) Loosen the retainer pinion assembly so that the retainer can be moved for realignment.
- 3) Set the slider to where it is as far as possible from the spindle motor and then align the retainer with the edge of the rack.
- 4) Return the retainer pinion assembly to its original position.

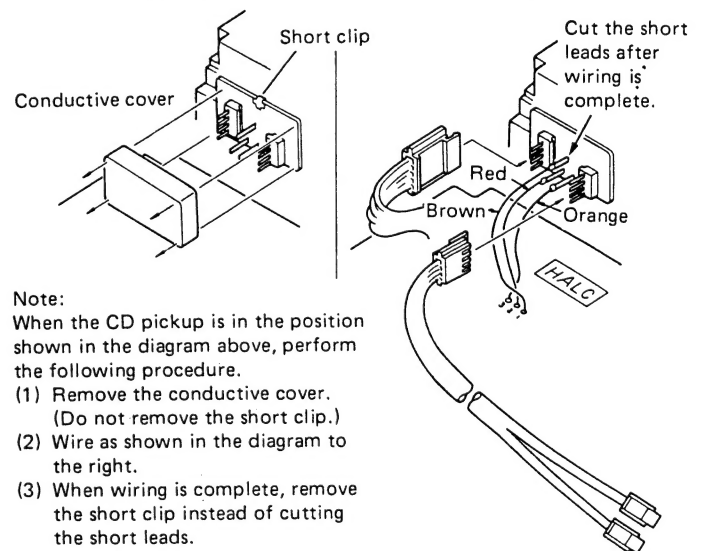


4. Replacing the Pickup

Note: When replacing the pickup, be absolutely sure to take measures to deal with static electricity in the pickup.

- Before beginning the pickup replacement procedure, place a conductive mat on the work bench and place the mechanism assembly and new pickup (with protective materials) on the mat.
- Cover shirt and trouser cuffs with a conductive cover and connect it to the conductive mat.
- Use a battery powered soldering iron and ground the tip of the iron on the conductive mat. (Never ground an iron connected to an AC power supply with the conductive mat.)
- In order to protect the new pickup, insert a short clip in the LD terminals, attach the conductive cover and keep the entire pickup unit in the conductive bag, completely packed, during the replacement procedure.

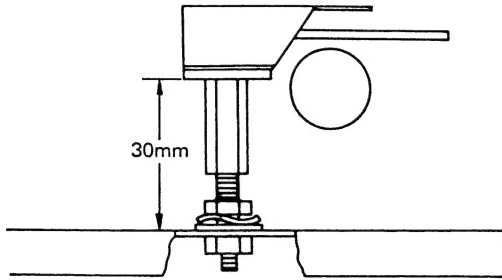
Note: After replacing the pickup, the height of the spindle motor must be readjusted.



- Note: When the CD pickup is in the position shown in the diagram above, perform the following procedure.
- (1) Remove the conductive cover. (Do not remove the short clip.)
 - (2) Wire as shown in the diagram to the right.
 - (3) When wiring is complete, remove the short clip instead of cutting the short leads.

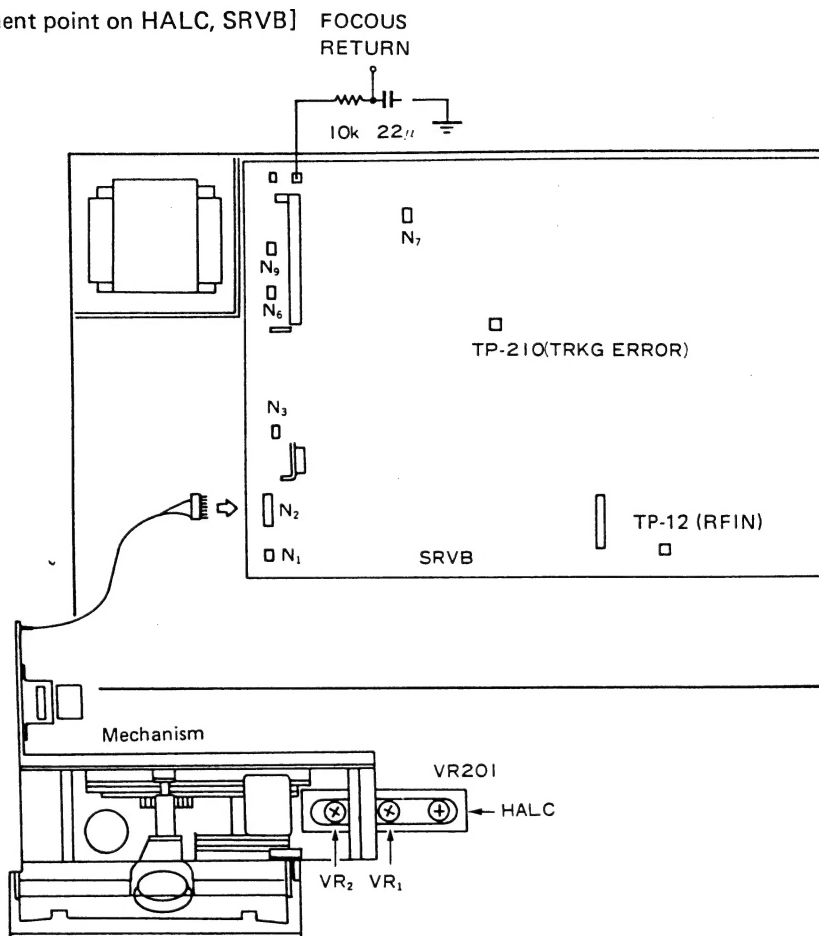
5. Attaching the Spindle Motor Ass'y to the Mechanism Chassis

- 1) From the bottom of the mechanism chassis, turn bolts (A), (B) and (C), in that order, clockwise two or three rotations at a time.
- 2) Set the spindle motor in place so the bottom surface of the spindle motor holder is 30 mm from the top surface of the mechanism chassis at each bolt (A), (B) and (C).

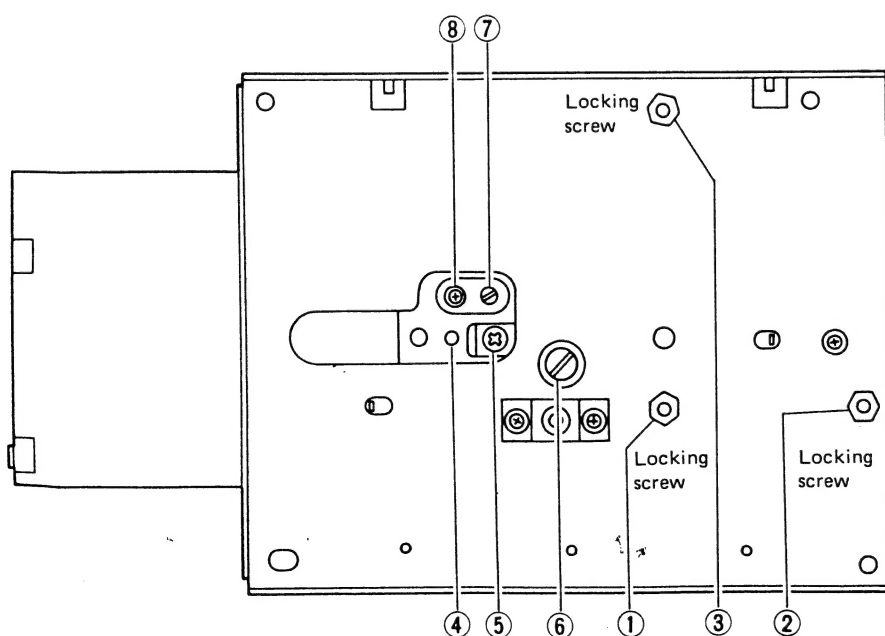


2. ADJUSTMENT

[Connection and adjustment point on HALC, SRVB]

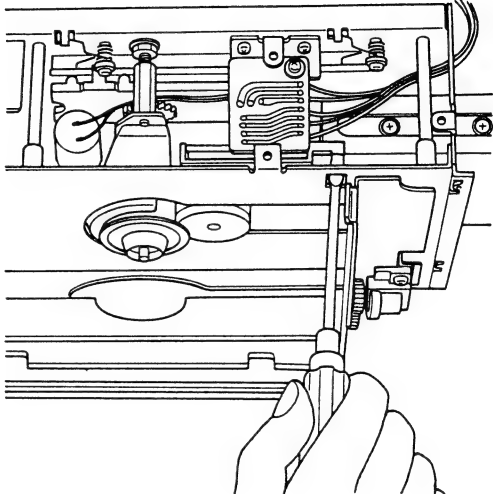


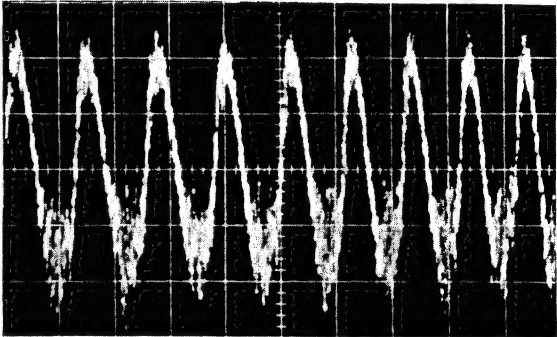
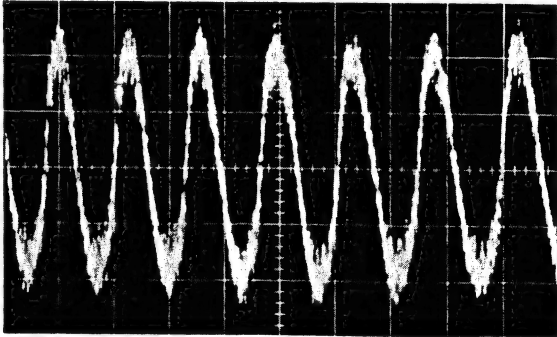
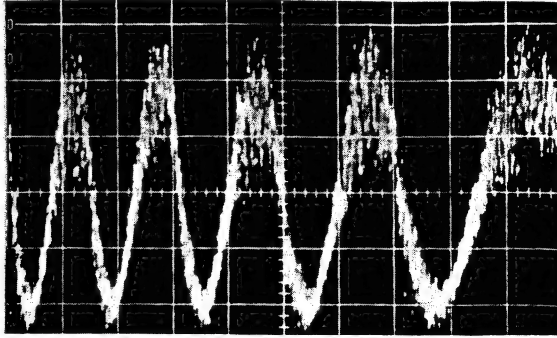
[Adjustment point]

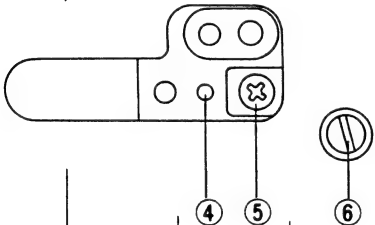


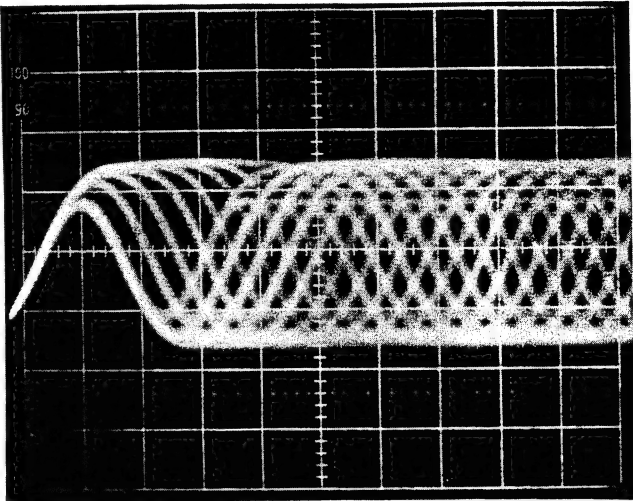
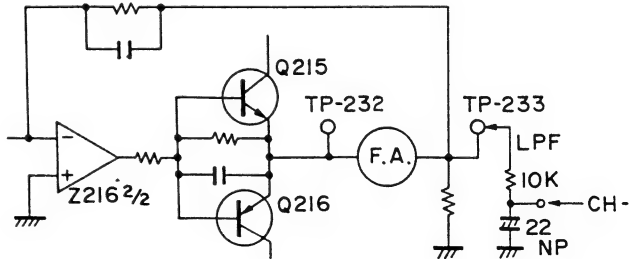
	Names of adjustment points
1	Height adjustment bolt 1
2	Height adjustment bolt 2
3	Height adjustment bolt 3
4	Pickup angle adjustment screw
5	Pickup angle stopper screw
6	Pickup attachment screw
7	Eccentric cam shaft
8	Eccentric cam attachment screw

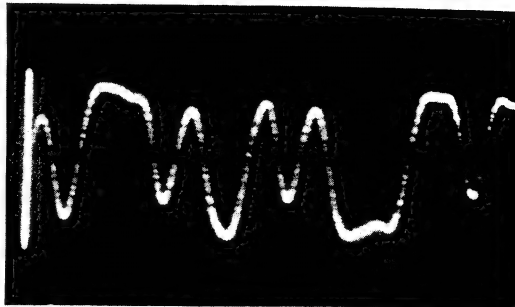
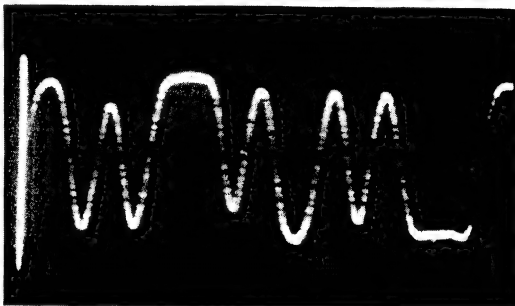
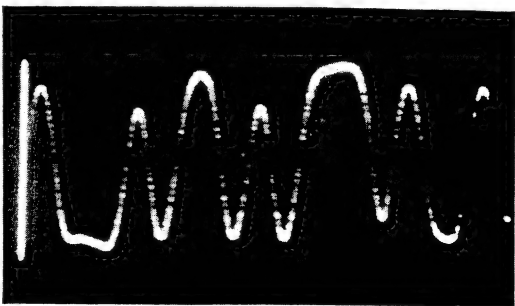
Step No.	Player Mode	Oscilloscope Range		Test Point	Adj. Point	Adjustment Checking Procedure																														
		CH-1	CH-2																																	
						<p>MEASUREMENT INSTRUMENTS AND TOOLS</p> <ul style="list-style-type: none">• Dual trace oscilloscope.• Light power meter.• Test disc (YEDS-3). <p>PRECAUTIONS</p> <ul style="list-style-type: none">• Rough adjustment of the spindle motor height must be performed beforehand.• The pickup holder must not be tilted in relation to the slider.• There should be no abnormalities in the player itself.• 10:1 probes are used in these adjustments. Scope range is shown with the probe in use. <p>PREPARATIONS</p> <ul style="list-style-type: none">• Perform adjustment checks with the mechanism section removed from the player chassis.• Remove the CNBA board from the board holder.• Once the connector housing of the mechanism section is removed, confirm that it is connected as described in the table below.• Put the player in the test mode. (Turn power on while pressing the SCON board push switch.) <table><tr><th colspan="2">Mechanism section connector housing</th><th>SRVB Connector</th></tr><tr><td>Brown lead</td><td>2P</td><td>N1</td></tr><tr><td>Orange lead</td><td>2P</td><td>N3</td></tr><tr><td>Green lead</td><td>2P</td><td>N5</td></tr><tr><td>Blue lead</td><td>2P</td><td>N6</td></tr><tr><td>Purple lead</td><td>2P</td><td>N7</td></tr><tr><td>White lead</td><td>2P</td><td>N9</td></tr><tr><td colspan="3">The above leads are color coded.</td></tr><tr><td>9P</td><td>Connector housing</td><td>N10</td></tr><tr><td>7P</td><td>(CNBB)</td><td>N2</td></tr></table>	Mechanism section connector housing		SRVB Connector	Brown lead	2P	N1	Orange lead	2P	N3	Green lead	2P	N5	Blue lead	2P	N6	Purple lead	2P	N7	White lead	2P	N9	The above leads are color coded.			9P	Connector housing	N10	7P	(CNBB)	N2
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Step No.	Player Mode	Oscilloscope Range		Test Point	Adj. Point	Adjustment Checking Procedure
		CH-1	CH-2			
1		—	—	—	HALC VR201	<p>LASER OUTPUT ADJUSTMENT</p> <ul style="list-style-type: none"> • Turn the HALC VR201 fully counterclockwise. • Set the sensor of the light power meter in front of the objective lens. • Release the beam shutter. 
	REPEAT	—	—	—	HALC VR201	<ul style="list-style-type: none"> • Press the repeat button (LD ON). • Slowly turn the HALC VR201 clockwise until the power meter shows a strength of about 0.2mW. (Do not turn VR201 rapidly.) • Move the sensor of the power meter around the objective lens to find the point where the power is highest. • While holding the sensor at that point, adjust VR201 again so the output becomes $0.3\text{mW} \pm 0.01\text{mW}$. • Again move the sensor around the objective lens and confirm that the power meter reading does not exceed the maximum value found earlier. • Press the repeat button again (LD OFF). <p><i>Note: Since the semiconductor laser will be destroyed if its output exceeds the standard, be sure the output is not more than 0.35mW.</i></p>

Step No.	Player Mode	Oscilloscope Range		Test Point	Adj. Point	Adjustment Checking Procedure
		CH-1	CH-2			
2	PLAY Numeric button 1	—	0.1V/div 2ms/div	SRVB TP-210	Adjustment screw 4 lock screw 5	<p>PICKUP ANGLE ADJUSTMENT</p> <ul style="list-style-type: none">Insert the test disc and press the play button. (START UP)Connect the oscilloscope (CH-2) to TP-210 (TRKG ERROR).Press numeric button 1 when the slider is located at the inside of the disc (TRKG OPEN).Turn the pickup angle adjustment screw (hexagonal screw 4) and, while tightening lock screw 5 , adjust so the noise component of the TRKG error waveform is the same level around both the positive and negative peaks. Repeat this procedure until the levels are the same. <p><i>Note: Be careful not to tighten screw 5 too firmly.</i></p> <p>Specified torque: 5kg·cm</p> <ul style="list-style-type: none">After performing the adjustments in steps 3, 4 and 5, tighten lock screw 6 . <p>Specified torque: 5kg·cm</p> <div><div>NG</div></div> <div><div>OK</div></div> <div><div>NG</div></div>



Step No.	Player Mode	Oscilloscope Range		Test Point	Adj. Point	Adjustment Checking Procedure
		CH-1	CH-2			
3	PLAY	—	50mV/div 0.5 μ S/div	SRVB TP-12	HALC VR1	<p>FOCUS OFFSET ADJUSTMENT</p> <ul style="list-style-type: none"> Connect the probe (CH-2) to SRVB TP-12 (RF IN). Adjust HALC VR1 so the RF signal amplitude is as large as possible. 
4	PLAY Numeric 2	1mV/div 0.5 μ S/div	—	SRVB TP-233	Height adjustment bolts 1 2	<p>SPINDLE MOTOR ANGLE ADJUSTMENT (in TRKG direction)</p> <ul style="list-style-type: none"> Connect the CH-1 probe to SRVB TP-233 (FOCS RTN) through LPF (10kΩ/22μF) and connect CH-2 to SRVB TP-12 (RF IN). Press numeric key 2 (TRKG CLOSE). Confirm the ground level of CH-1, and locate the slider at the inside of the disc. Adjust height adjustment bolt 1 so the focus returning voltage of CH-1 is $-30\text{mV} \pm 10\text{mV}$. Press the */TIME button to move the slider to the outside of the disc and then adjust height adjustment bolt 2 so the focus return voltage of CH-1 is $-30\text{mV} \pm 10\text{mV}$. Repeat the adjustments for the inside and outside of the disc several times and then tighten the lock screws (hexagonal). <p>Finally, confirm that the voltages for the inside and outside of the disc are within the standard and that the difference between the two voltages is not more than 5mV.</p> 

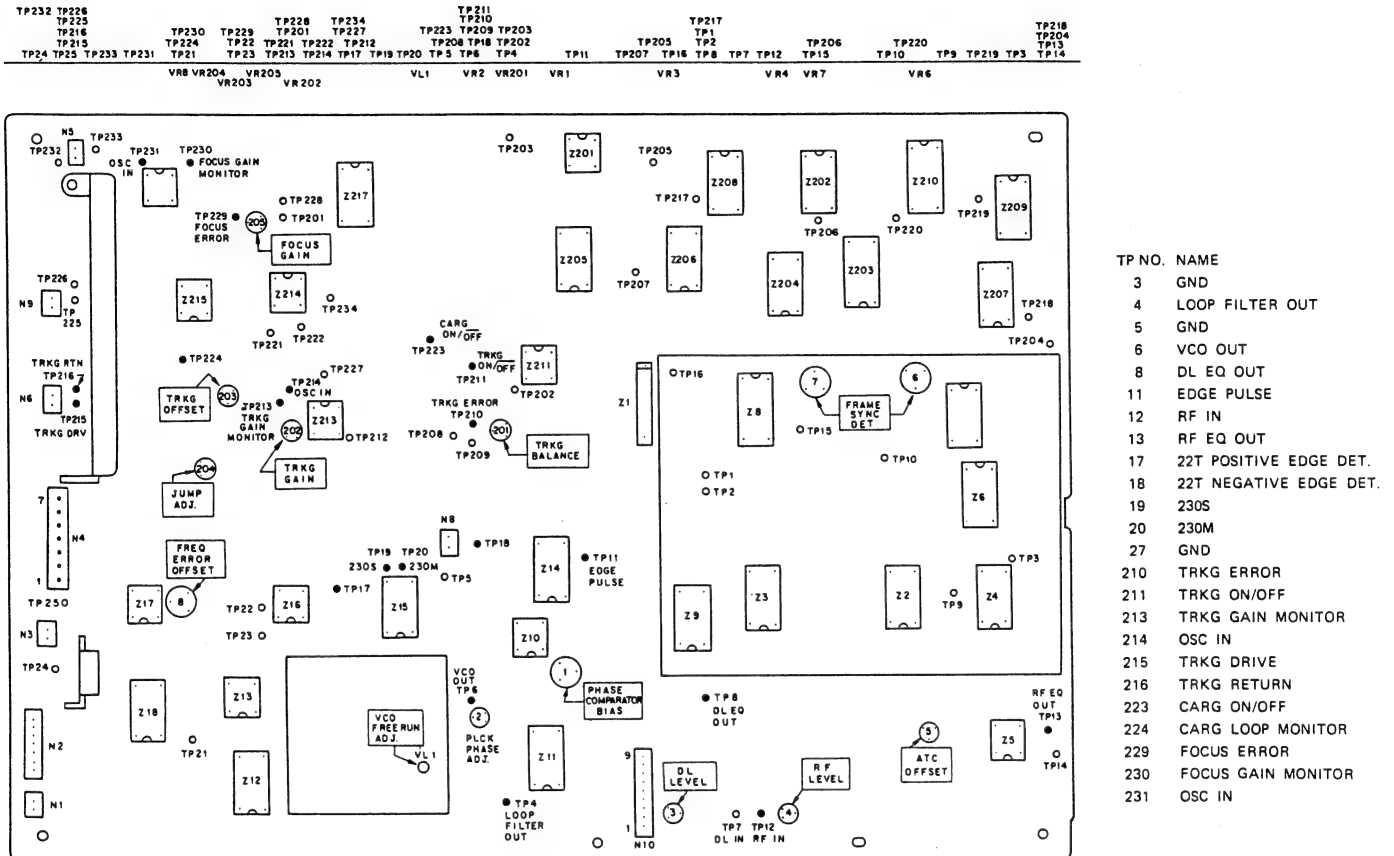
Step No.	Player Mode	Oscilloscope Range		Test Point	Adj. Point	Adjustment Checking Procedure
		CH-1	CH-2			
5	PLAY	—	50mV/div 0.5μs/div	SRVB TP-12	Height adjustment bolt 3	<p>SPINDLE MOTOR ANGLE ADJUSTMENT (in TANG direction)</p> <ul style="list-style-type: none"> Move the slider to the outside of the disc and adjust height adjustment bolt 3 so the CH-2 RF signal waveform peaks become flat. After tightening the hexagonal lock screws, confirm that the CH-2 waveform has not changed. Check step 4 again and, if the value is not correct, repeat steps 4 and 5. <div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> NG  </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> OK  </div> <div style="display: flex; align-items: center;"> NG  </div> </div>

Step No.	Player Mode	Oscilloscope Range		Test Point	Adj. Point	Adjustment Checking Procedure
		CH-1	CH-2			
6						<p>PICKUP ANGLE, FOCUS OFFSET AND SPINDLE MOTOR ANGLE FINE ADJUSTMENT</p> <ul style="list-style-type: none"> Repeat steps 2, 3, 4 and 5 and readjust wherever necessary so that all values and conditions are as specified. If a readjustment was performed, always check each item in steps 2, 3, 4 and 5 again. <pre> graph TD START([START]) --> Prep[Preparations] Prep --> S1[Step 1 Laser output adjustment] S1 --> S2[Step 2 Pickup angle adjustment] S2 --> S3[Step 3 Focus offset adjustment] S3 --> S4[Step 4 Spindle angle (TRKG direction) adjustment • Inside of disc • Outside of disc] S4 --> C4{Check step 4.} C4 -- NO --> SM1{Standards met?} C4 -- YES --> C5{Check step 5.} SM1 -- YES --> S7[Step 7 Inside adjustment] SM1 -- NO --> B((B)) S7 --> SL[Screw lock] SL --> END([END]) C5 -- YES --> SM2{Standards met?} C5 -- NO --> C((C)) SM2 -- YES --> S7 SM2 -- NO --> C C4 --> C2{Check step 2.} C2 --> CM{Conditions met?} CM -- YES --> A((A)) CM -- NO --> S2 A --> TS6[Tighten attachment screw 6] TS6 --> S3 S3 --> C4 </pre> <p>Mechanism section adjustment flowchart</p>

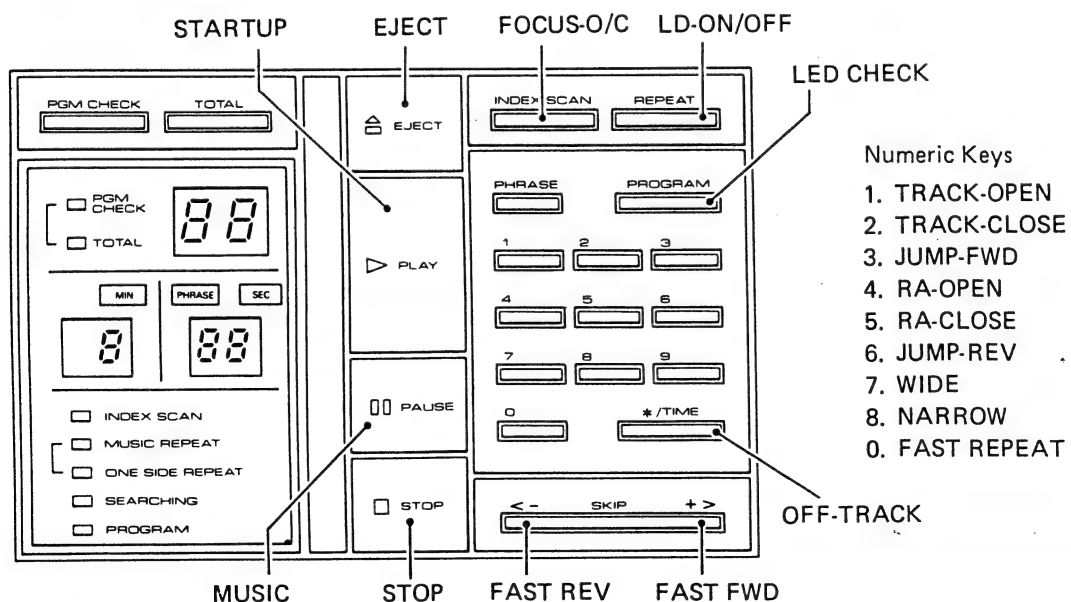
Step No.	Player Mode	Oscilloscope Range		Test Point	Adj. Point	Adjustment Checking Procedure
		CH-1	CH-2			
7	PLAY STOP PLAY, PAUSE				Eccentric cam 7 lock screw 8	<p>INSIDE ADJUSTMENT</p> <ul style="list-style-type: none"> • Slightly loosen the eccentric cam lock screw 8 so the cam can be adjusted. • Press the play button (START UP) and then press the SKIP + > button to move the slider a little toward the outside of the disc. • Press the stop button to return the slider to the inside of the disc. • Press the play and pause (MUSIC) buttons in that order. • Adjust the eccentric cam 7 so the indicator reading is between 1 min. 0.5 sec. and 1 min. 30 sec. when the indicator begins to advance. • Tighten the eccentric cam lock screw 8 and recheck the cam adjustment. <p>SCREW LOCK</p> <ul style="list-style-type: none"> • Apply screw lock to the height adjustment bolts 1, 2 and 3, each hexagonal attachment screw, the pickup angle adjustment screw 4 and the eccentric cam lock screw 8.

3. ELECTRICAL ADJUSTMENTS

SRVB Adjustment Location



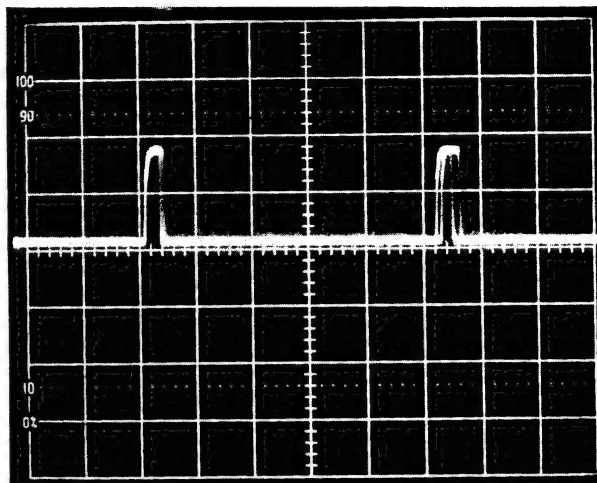
Key Functions at Test Mode



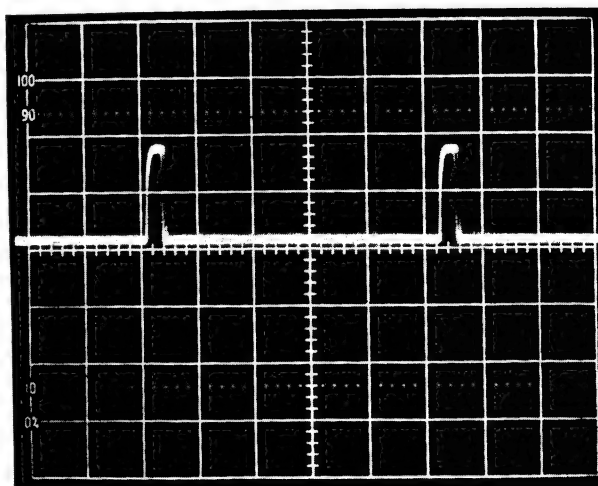
Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
1	REPEAT				HALC VR201	<p>MEASUREMENT INSTRUMENTS AND TOOLS</p> <ul style="list-style-type: none"> • Dual trace oscilloscope with delayed sweep • Light power meter • Test disc (YEDS-3) • Filter for adjustment of FOCUS/TRKG gain • Stereo integrated amplifier and speaker system <p>PRECAUTIONS</p> <ul style="list-style-type: none"> • All mechanism adjustments must be finished. • 10:1 probes are used in these adjustments. Scope range is shown with the probe in use. • After turning power on, confirm that all motors are not rotating and that the objective lens is retracted inside its holder. • The waveform photo was taken when using a 35MHz band oscilloscope. <p>PREPARATIONS:</p> <ul style="list-style-type: none"> • Remove the cabinet. • Put the player in the test mode. (Turn power on while pressing the SCON board push switch.) <p>LASER POWER CHECK</p> <ul style="list-style-type: none"> • Put the player in the LD ON mode (REPEAT). • Release the beam shutter and check the laser power immediately in front of the objective lens. <p style="padding-left: 40px;">Standard: 0.3mW \pm 0.01mW</p> <ul style="list-style-type: none"> • Use the HALC VR201 to adjust laser power if necessary. (Refer to step 1 of the mechanism section adjustments.)
2	STOP	10mV/div	1ms/div	SRVB TP-216	SRVB VR203	<p>TRKG LOOP OFFSET ROUGH ADJUSTMENT</p> <ul style="list-style-type: none"> • Adjust the TRKG returning voltage to 0V.

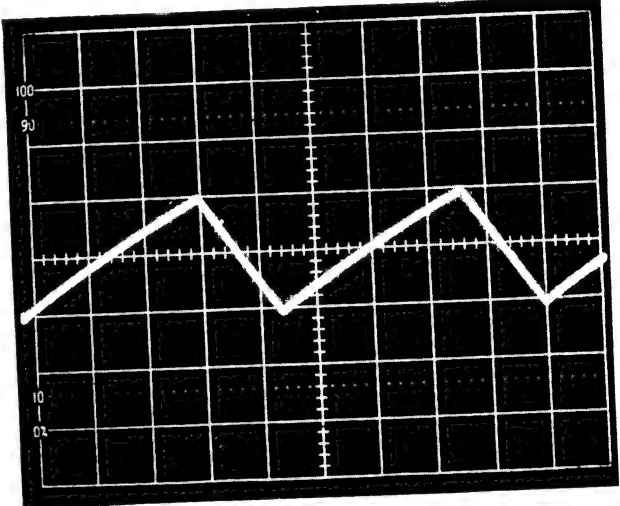
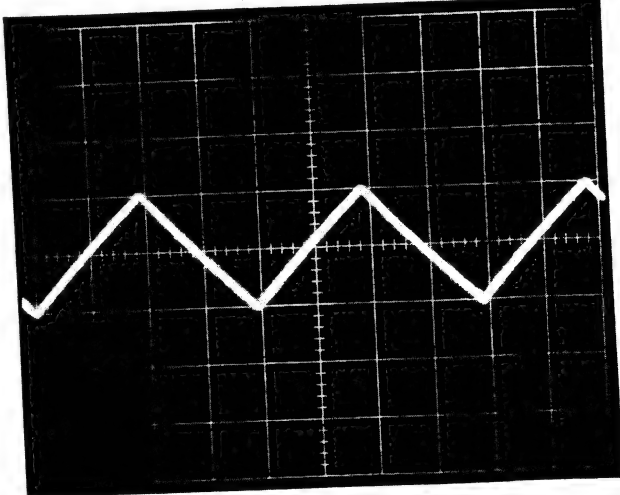
Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
3	STOP	0.2V/div	0.5 μ s/div	SRVB	SRVB VR5	<p>ATC OFFSET ADJUSTMENT</p> <ul style="list-style-type: none"> Turn off the power and remove SRVB N10. Turn the power on while pressing the SCON push switch. (Test mode) From AFSG, apply a 200kHz, 0.4Vp-p signal to TP-12 and monitor it at TP-11. Set to the focus on mode (INDEX SCAN). Adjust VR5 so that jitter is minimized.
	INDEX SCAN			TP-12 TP-11		

NG

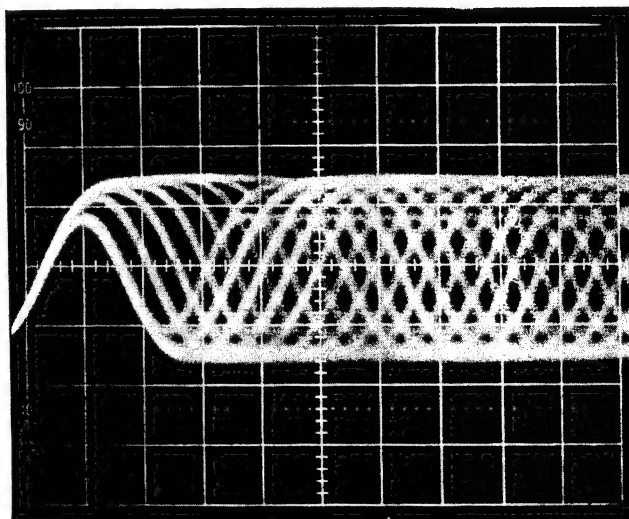


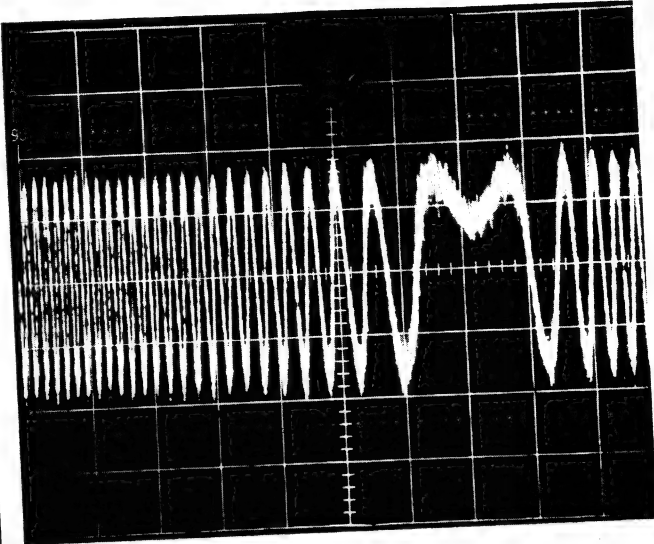
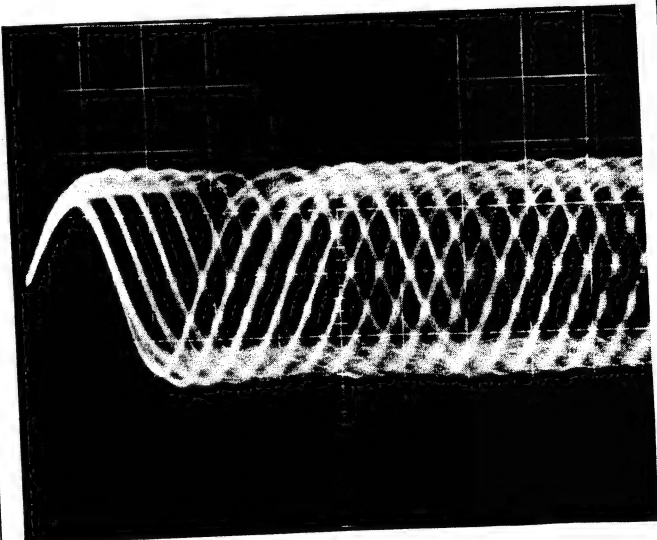
OK

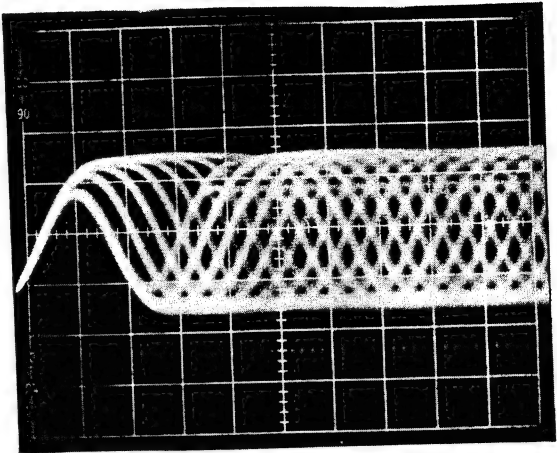


Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
4	STOP	500mV/div	0.5 μ s/div	SRVB TP-6	SRVB VL1	<p>VCO FREE RUN FREQUENCY ADJUSTMENT</p> <ul style="list-style-type: none"> • Turn off the power, remove the TP-4 side of SRVB R36 with a soldering iron and apply +5.00V to the R36 lead (of the part that was removed). • Turn the power on, connect a frequency counter to TP-6 and adjust to obtain 4.322MHz \pm 2kHz at VL1. • Confirm that the VCO oscillator output level of TP-6 is 1.5Vp-p \pm 0.5V. • Turn off the power and solder the R36 lead back into place.
5	STOP	0.1V/div	5ms/div	TP-4	SRVB VR-1	<p>PHASE COMPARATOR BIAS ADJUSTMENT</p> <ul style="list-style-type: none"> • Adjust to obtain a symmetrical triangular wave. <p>NG</p>  <p>OK</p> 

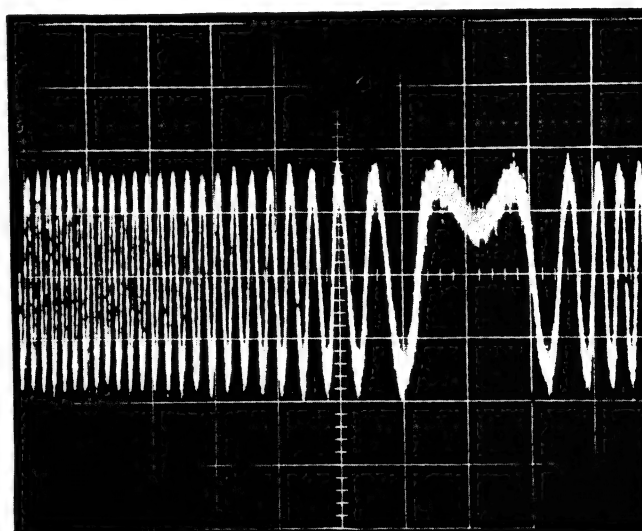
Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
6	PLAY < - SKIP + > PAUSE	50mV/div	0.5 μ s/div	SRVB TP-12	HALC VR1	<p>FOCUS OFFSET ROUGH ADJUSTMENT</p> <ul style="list-style-type: none"> • Insert the test disc and close the door. • Put the player in the start up mode (PLAY). Confirm that the music repeat LED (LD ON) and index scan LED (FOCUS ON) light and that the disc begins to rotate. • Press the SKIP + > button (F.F) to advance to the second song and then press the pause button (MUSIC). • If the pickup does not move to the second song, find it with the < - SKIP + > button. Be sure to press the pause button once the pickup has been moved to the second song with the < - SKIP + > Button. <p><i>Note: The song number indication appears a few seconds after the pause button is pressed.</i></p> <ul style="list-style-type: none"> • Adjust so the RF level is maximized.

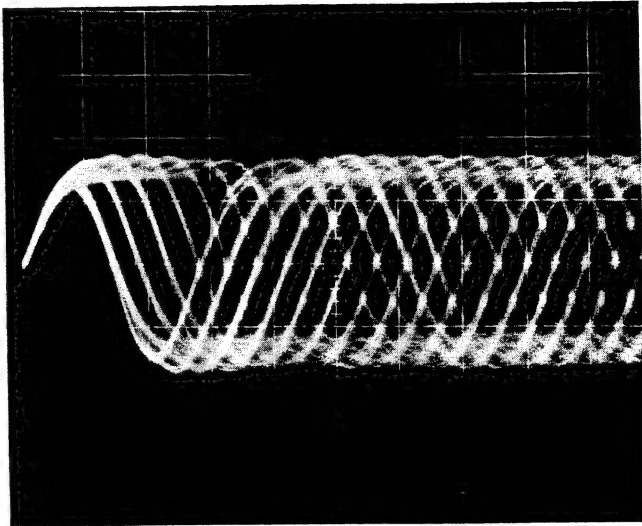
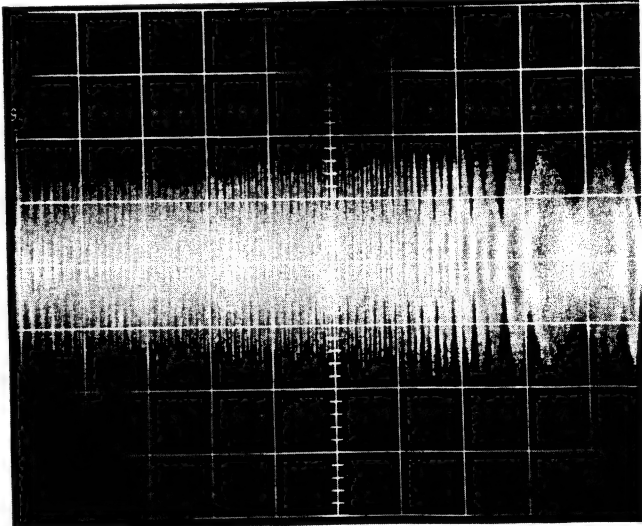


Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
7	PLAY Numeric 1	0.2V/div	5mS/div	SRVB TP-210	SRVB VR3	<p>TRKG ERROR LEVEL</p> <ul style="list-style-type: none"> Set player to TRKG open loop mode (numeric key 1) Adjust the TRKG error of TP-210 with VR3 (DL gain adjustment) so it is 5.5Vp-p. 
8	Numeric 1	0.2V/div	5ms/div	SRVB TP-210	SRVB VR-201	<p>TRKG BALANCE</p> <ul style="list-style-type: none"> Eliminate the DC component in the TRKG error. (Adjust so the TRKG error waveform is centered around 0V.)
9	Numeric 2	0.1V/div	0.5μs/div	SRVB TP-13	SRVB VR4	<p>RF LEVEL</p> <ul style="list-style-type: none"> Return the TRKG loop to the closed mode (numeric key 2). Adjust so the RF signal level is 3.2Vp-p. 

Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
11	PLAY	0.2V/div	0.5 μ s/div	SRVB TP-12	HALC VR1	<p>FOCUS OFFSET FINE ADJUSTMENT</p> <ul style="list-style-type: none"> Adjust so the eye pattern is as sharp as possible. 
	STOP	5mV/div	5ms/div	SRVB TP-229	HALC VR1	<ul style="list-style-type: none"> Press the stop button and read the DC voltage V_O of TP-229. Turn the HALC VR1 so the DC voltage of TP-229 is $V_O - 50\text{mV}$.

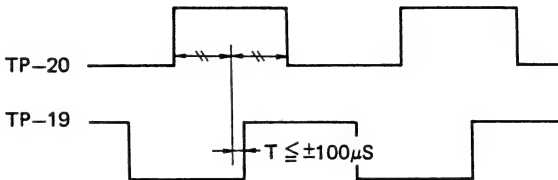
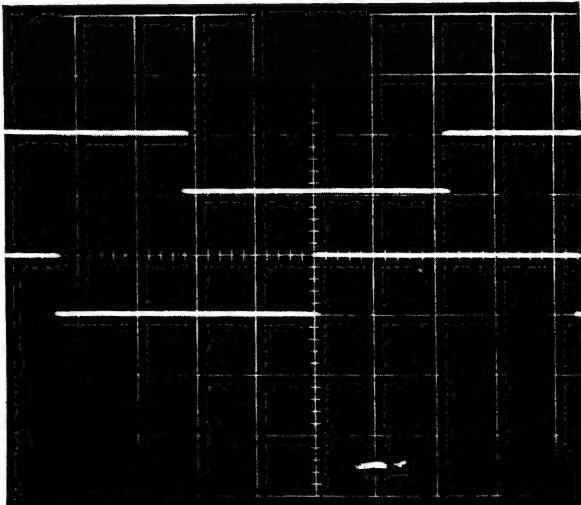
Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
12	PLAY					TRKG ERROR LEVEL AND TRKG BALANCE FINE ADJUSTMENT <ul style="list-style-type: none"> Put the player in the start up mode (press play button). Press the SKIP + > button to move the slider to the outside of the disc. Then put the player in the music mode (pause). Use the SKIP + > and pause buttons to move to a point between the 0 and 2 min. section of the second song. Put the player in the TRKG OPEN mode (numeric key 1). Adjust the TRKG error level to 5.5Vp-p. Adjust VR201 to eliminate the DC component in the TRKG error (so the TRKG error waveform is centered around 0V). When the adjustments are completed, press numeric key 2 (TRKG CLOSE).
	SKIP + > PAUSE					
	Numeric 1	0.2V/div	5ms/div	SRVB TP-210	SRVB VR3	
	Numeric 2			TP-210	SRVB VR201	



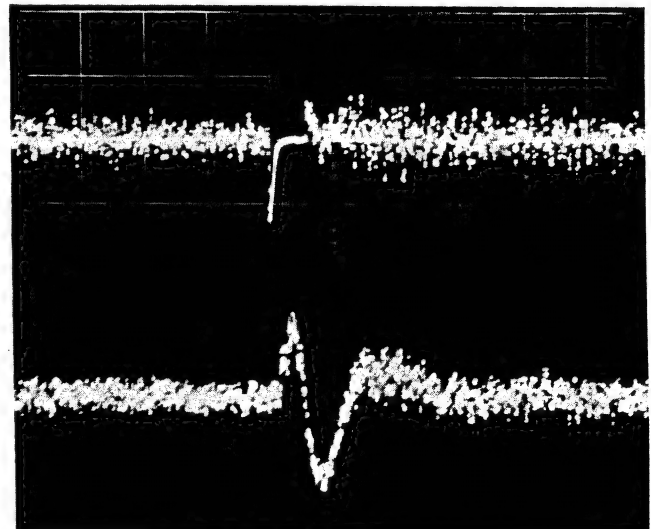
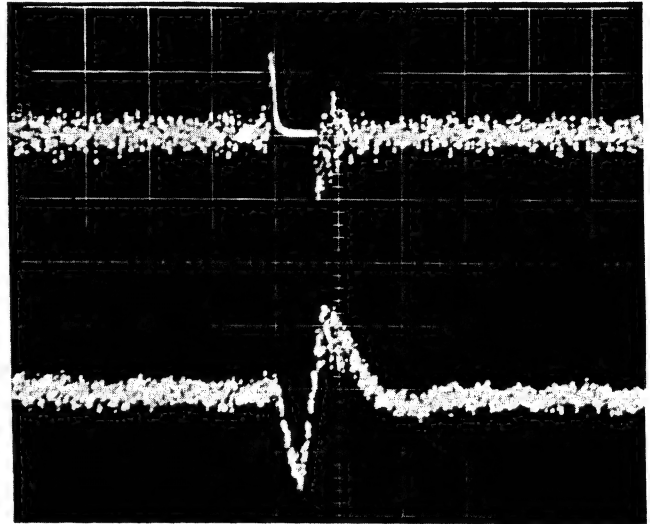
Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
13	PLAY Numeric 2	0.1V/div	0.5 μ s/div	SRVB TP-13	SRVB VR4	<p>RF LEVEL ADJUSTMENT</p> <ul style="list-style-type: none"> Put the player in the TRKG close mode (numeric key 2). Adjust the RF level to 3.2Vp-p. 
14	PLAY Numeric 1	20mV/div	5ms/div	SRVB TP-8		<p>DL SIGNAL LEVEL CHECK</p> <ul style="list-style-type: none"> At a point between 0 and 2 min. of the second song, put the unit in the TRKG open mode (numeric key 1) and AC couple the oscilloscope. Confirm that the DL signal level is 0.65~0.8Vp-p. 

Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
15	PLAY			SRVB TP-214 TP-213	SRVB VR202	<p>TRKG GAIN ADJUSTMENT</p> <ul style="list-style-type: none">Connect the gain adjustment tool, AF oscillator and oscilloscope as shown below.Adjust so the AF oscilloscope output is 1.5kHz, 0.1Vp-p.Set the oscilloscope to the X-Y mode and adjust VR202 so the lissajous waveform is a horizontal oval.
<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></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Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
16	PLAY	0.5V/div	0.1ms/div	SRVB		<p>SYNC SERVO CHECK</p> <ul style="list-style-type: none"> Confirm that the TP4 voltage V_1 is $5 \pm 0.4V$. Put the unit in the music mode (PAUSE) and confirm that the TP4 voltage V_2 is $5 \pm 0.1V$. Confirm that $V_1 - V_2 < 0.4V$. <p>Perform the following procedure only when the absolute value of $V_1 - V_2$ is not less than 0.4V.</p> <ul style="list-style-type: none"> Turn off the power and remove N10, N11 and N3 from SRVB. Connect N11-4 (SYNC) to N4-1 (+5V). Put the player in the test mode. Connect the oscilloscope to TP-13, send a 196.445kHz sine wave from SG to TP-12 and adjust the oscillator so the signal at TP-13 is about 2.4Vp-p. <p>During the adjustment, continuously check the SG output frequency with a frequency counter.</p>
	PAUSE	0.5V/div	0.1ms/div	TP-4		
		0.1V/div	5 μ s/div	SRV13 TP-13 TP-12		<ul style="list-style-type: none"> Put the player in the test mode. Connect the oscilloscope to TP-13, send a 196.445kHz sine wave from SG to TP-12 and adjust the oscillator so the signal at TP-13 is about 2.4Vp-p. <p>During the adjustment, continuously check the SG output frequency with a frequency counter.</p>
	INDEX SCAN	0.2V/div	0.5 μ s/div	TP-17	VR7	<ul style="list-style-type: none"> Put the player in the focus on mode (press index scan). While observing the waveform, turn VR7 counterclockwise so that TP-17 is almost at the level (0~10% of the H level).
		0.2V/div	0.5 μ s/div	TP-18	VR6	

Step. No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
17	PLAY PAUSE	0.5V/div 0.5V/div	0.5ms/div	SRVB TP-20 TP-19	SRVB VR8	<p>QUARTZ SERVO CHECK</p> <ul style="list-style-type: none"> Set the oscilloscope to the chop mode.  <p>TP-20</p> <p>TP-19</p> <p>$T \leq \pm 100\mu s$</p> <ul style="list-style-type: none"> Trigger the oscilloscope by the 230M signal of TP-20 and read the deviation T including the jitter of TP-19. T must not exceed $\pm 100\mu s$. If T is not within the standard, adjust VR8.  <p>TP-20</p>

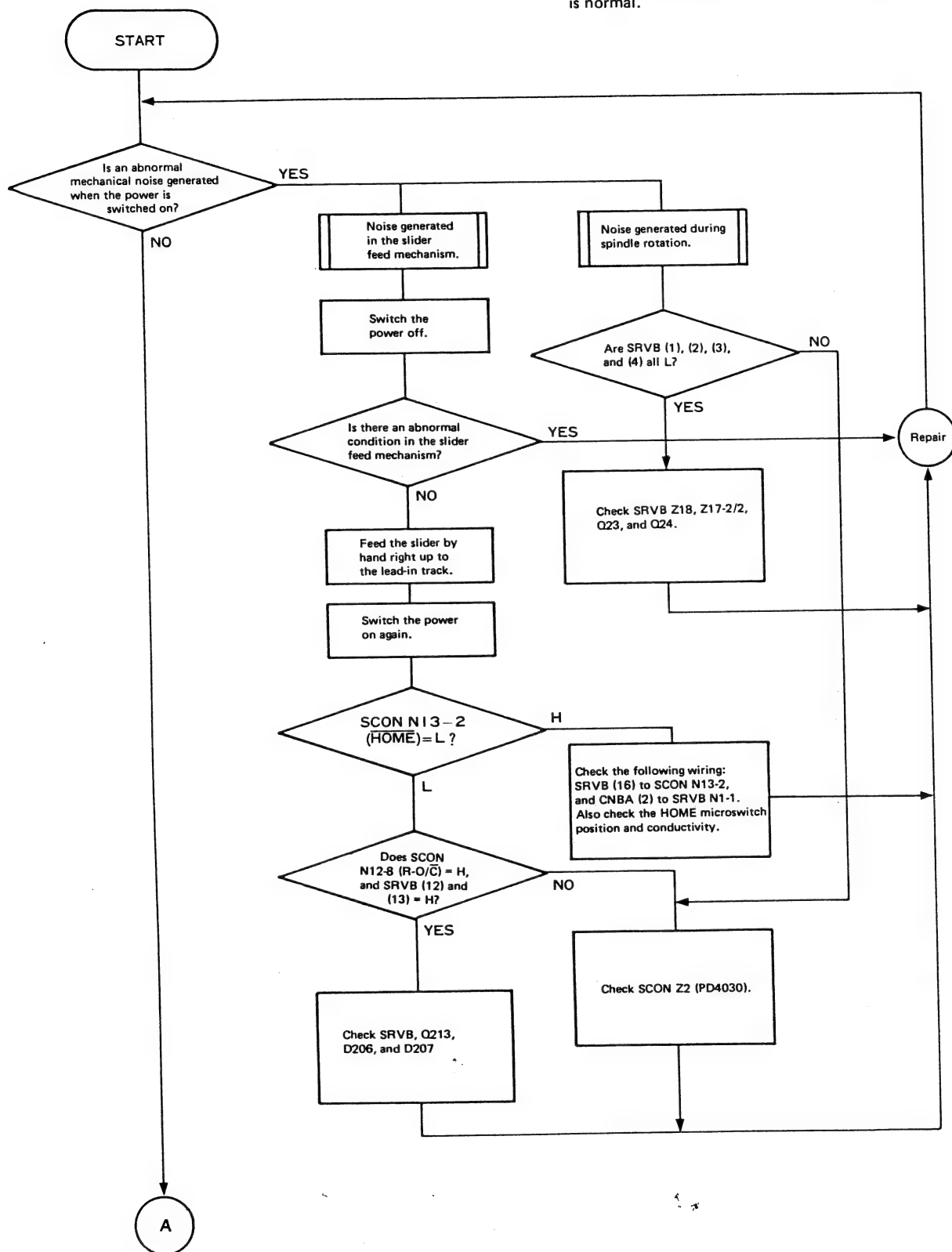
Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
18	PLAY Numeric 3					JUMP ADJUSTMENT <ul style="list-style-type: none"> Adjust VR204 so the peak of the jump waveform at the TRKG driving (TP-215) terminal is $7V \pm 1V$ when jumping forward (numeric key 3 pressed). Confirm that the overshoot after jumping is not more than half of the peak value during the jump based on the TRKG error of TP-210.
		0.5V/div	0.5ms/div	SRVB TP-215	SRVB VR204	
		0.2V/div		TP-210		
	Numeric 6					<ul style="list-style-type: none"> Confirm that the peak of the jump waveform at the TRKG driving (TP-215) terminal is $-7V \pm 1V$ during reverse jumping (numeric key 6 pressed). Confirm that the overshoot after jumping is not more than half of the peak value during the jump based on the TRKG error of TP-210.
		0.5V/div	0.5ms/div	TP-215		
		0.2V/div		TP-210		

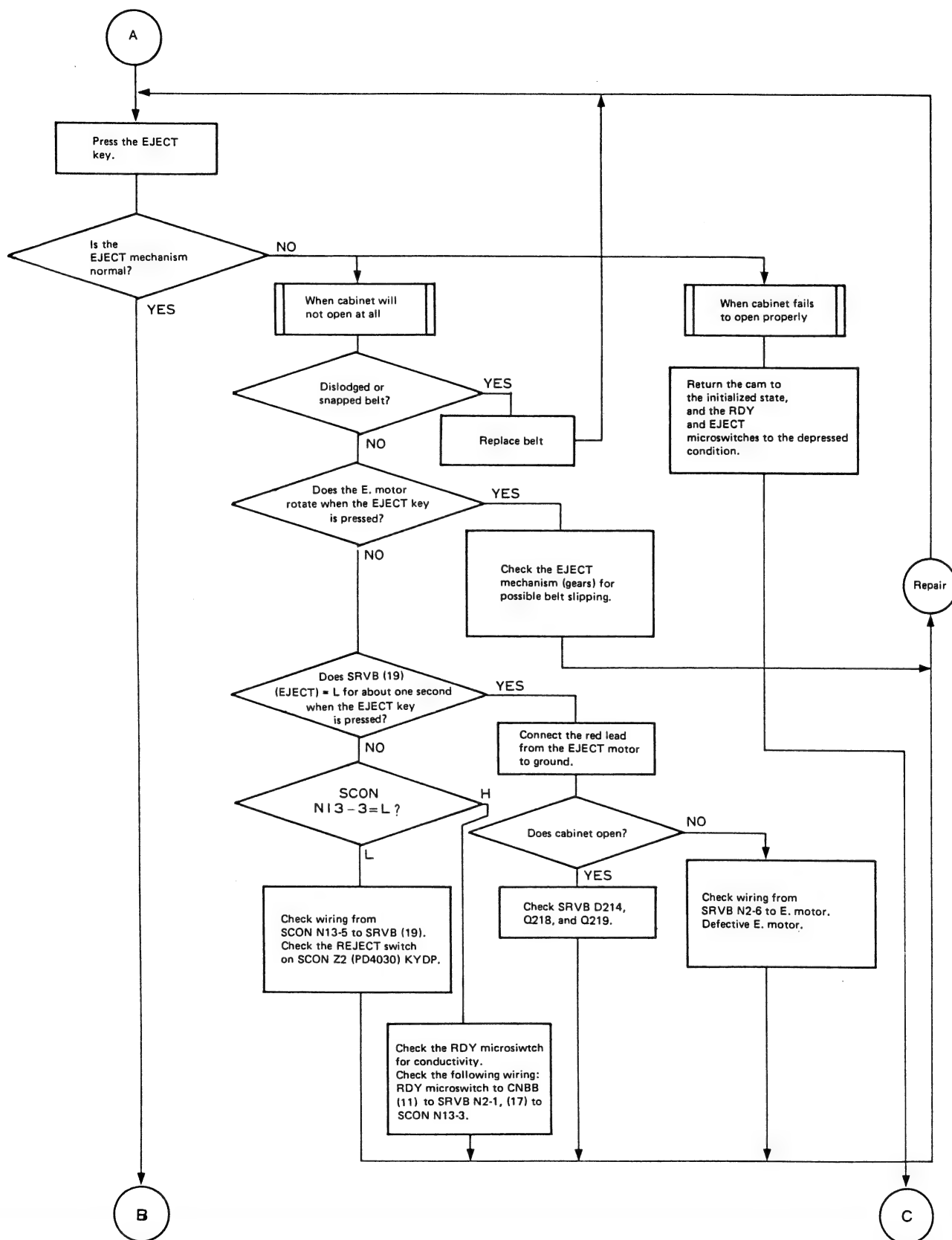


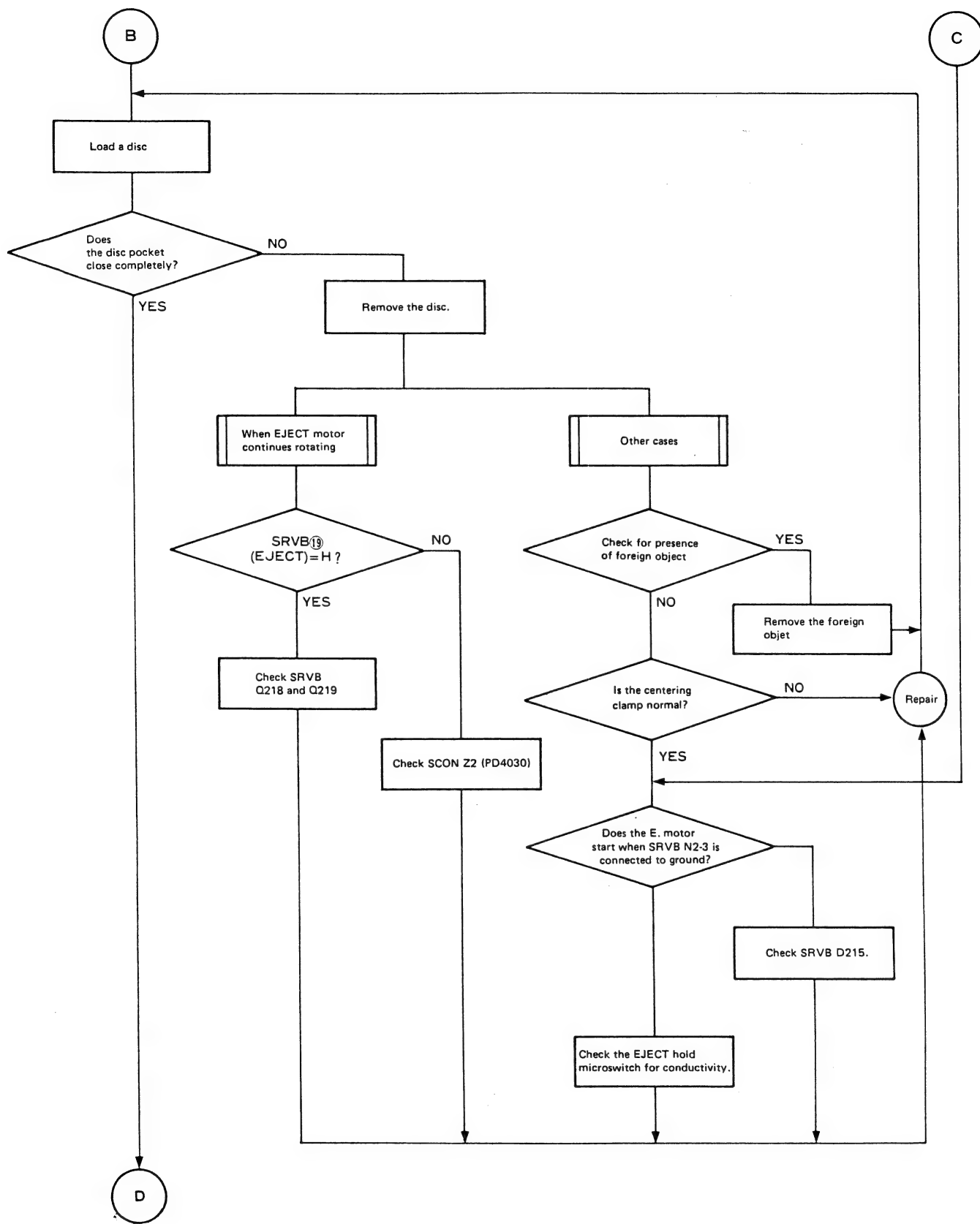
Step No.	Player Mode	Oscilloscope Range		TP No.	Adj. Point	Adjustment Checking Procedure
		V	H			
19	STOP	5mV/div	1ms/div	SRVB TP-223 TP-211 TP-224	SRVB VR203	TRKG OFFSET FINE ADJUSTMENT <ul style="list-style-type: none"> Press the stop button. Connect TP-223 and TP-211 with the short clip. Monitor TP-224 and adjust VR204 so it becomes 0V. Remove the short clip.
20	PLAY PAUSE STOP PLAY PAUSE					INSIDE LIMIT LOCATION CHECK <ul style="list-style-type: none"> After start up (play), put the player in the music mode (pause). Press the stop button to return the slider to the inside of the disc. Press the play and pause buttons in that order. Confirm that the reading is between 1 min. 0.5 sec. and 1 min. 30 sec. when the indicator begins to advance. If the reading is not between those times, perform step 7 of the mechanism adjustments.

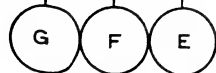
4. TROUBLESHOOTING

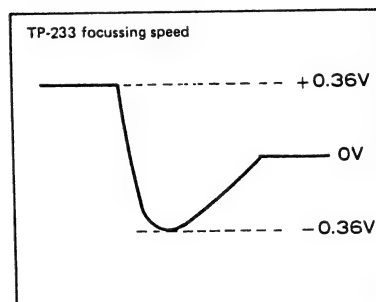
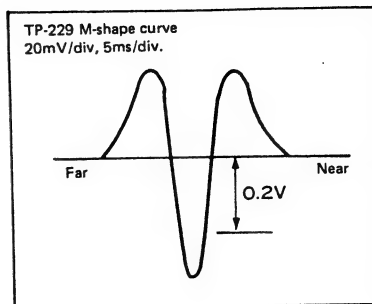
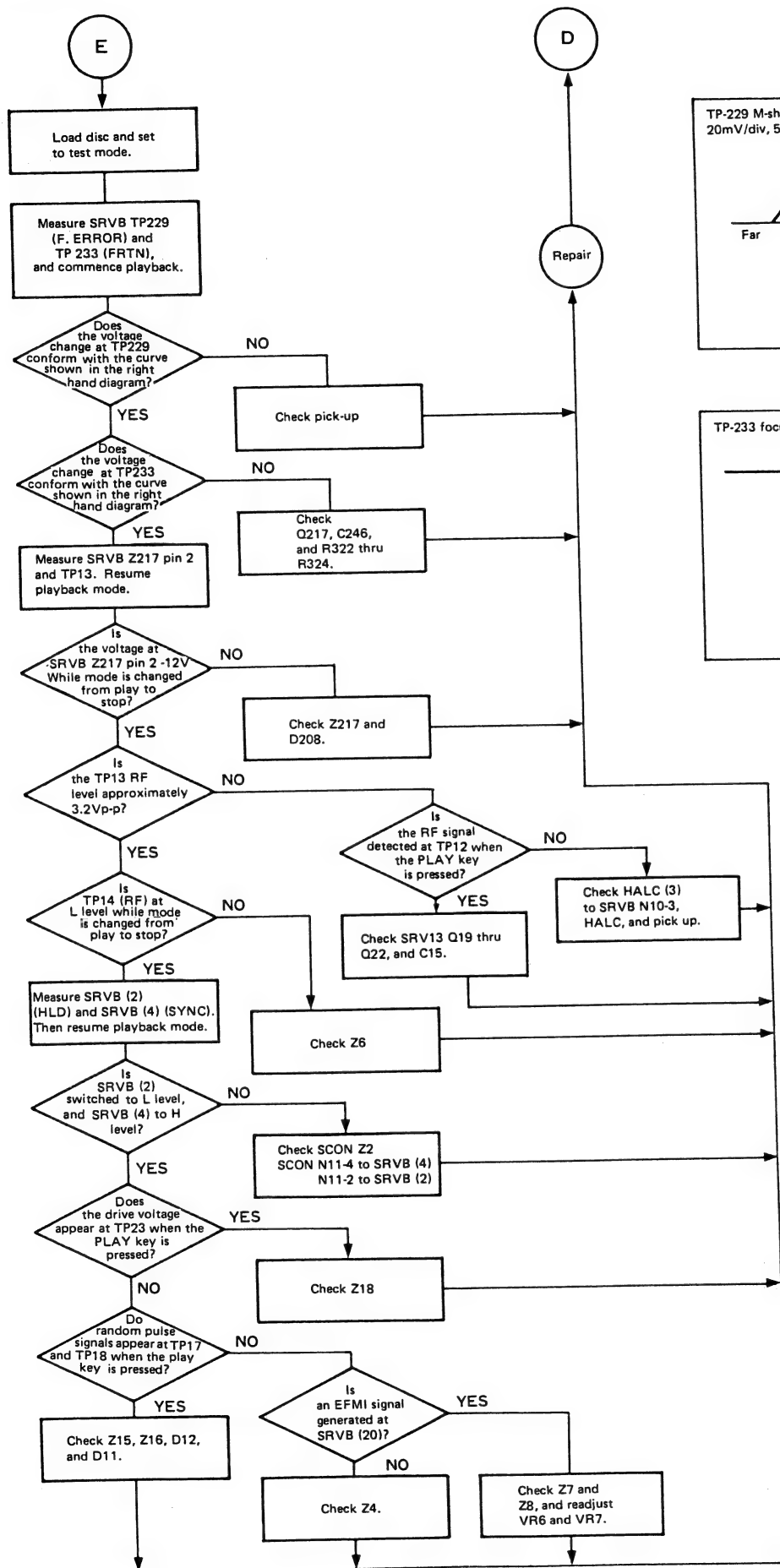
Note: •First check that the displayer power supply system is normal.
•Make sure that the compact disc employed is normal.

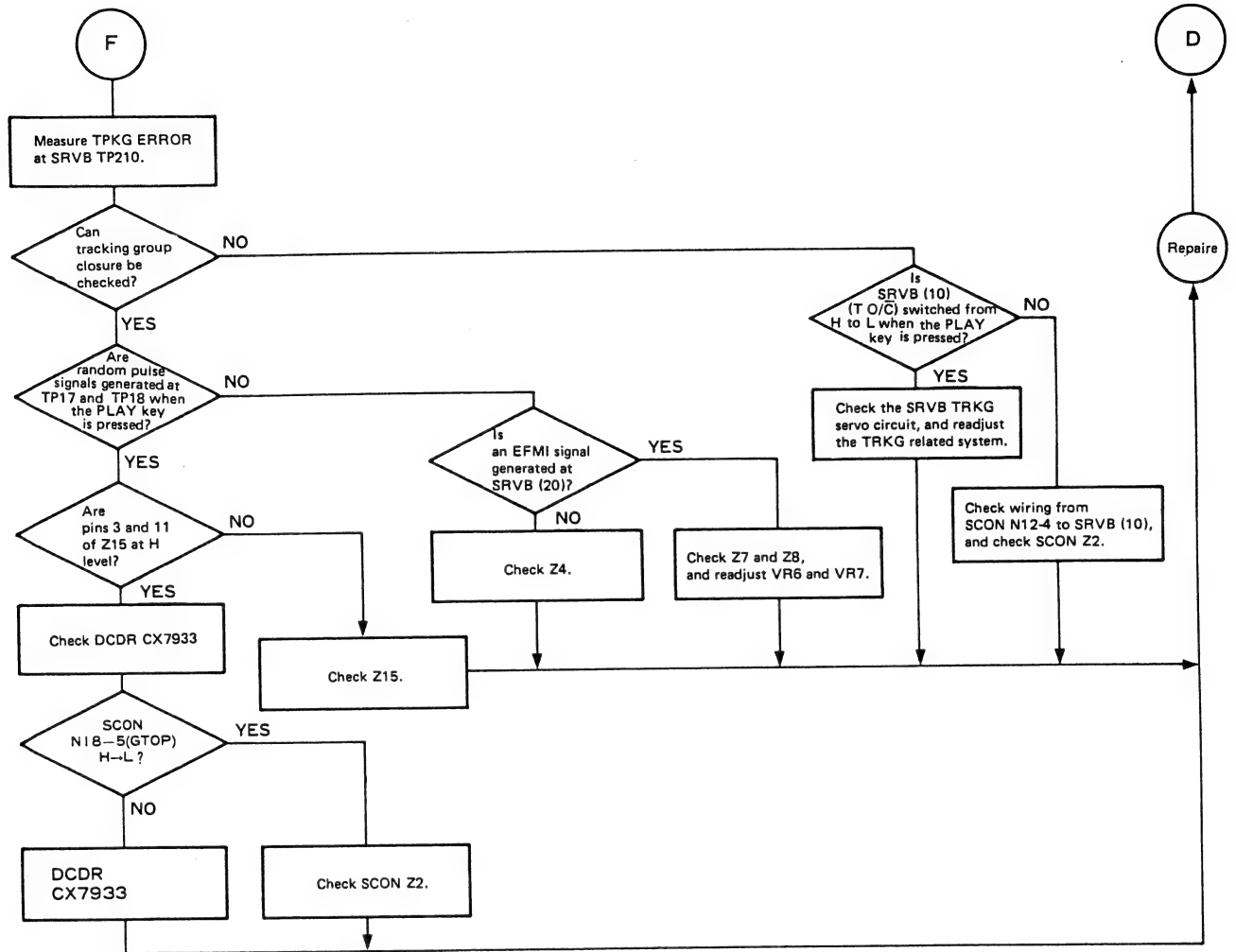


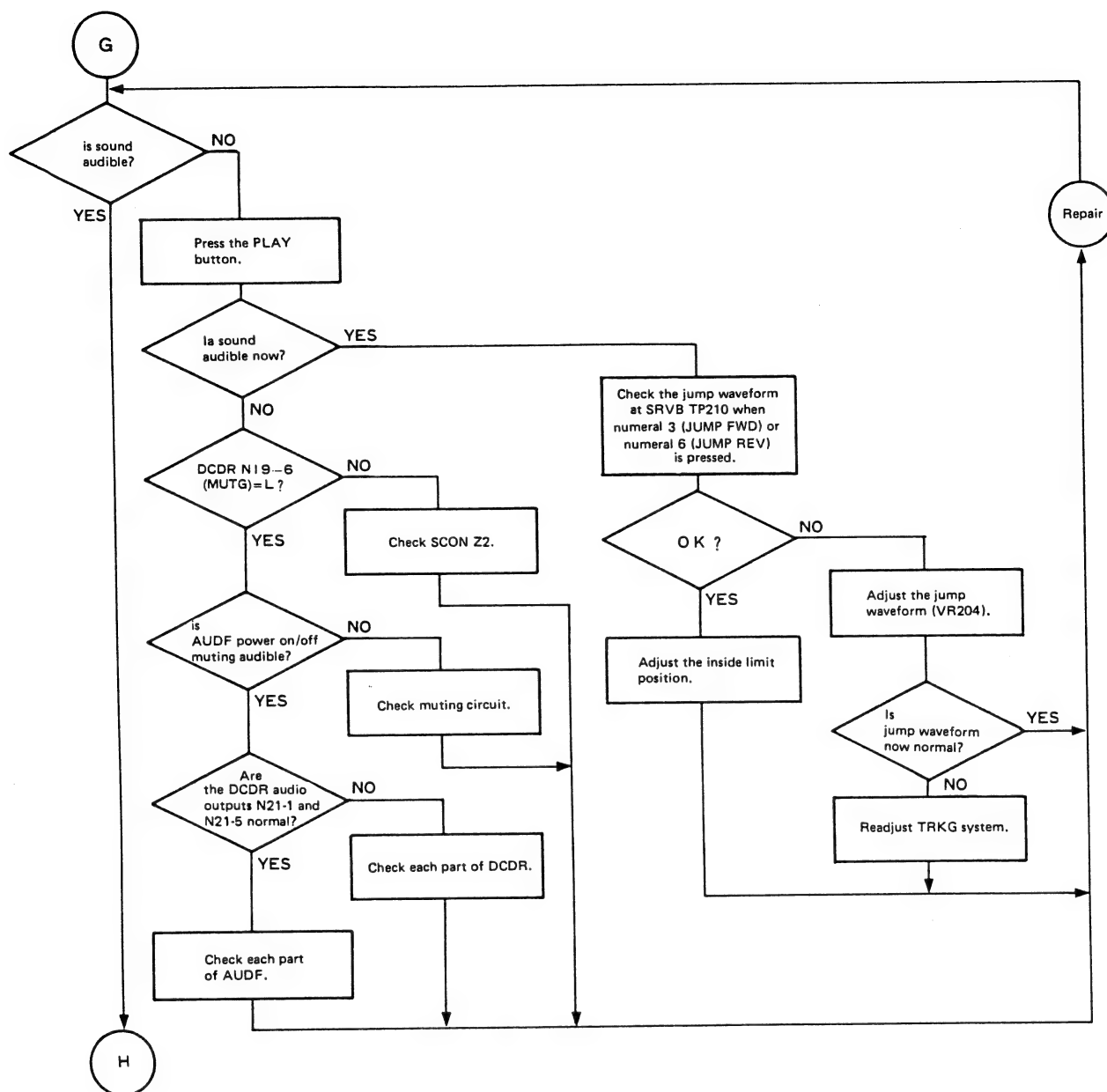


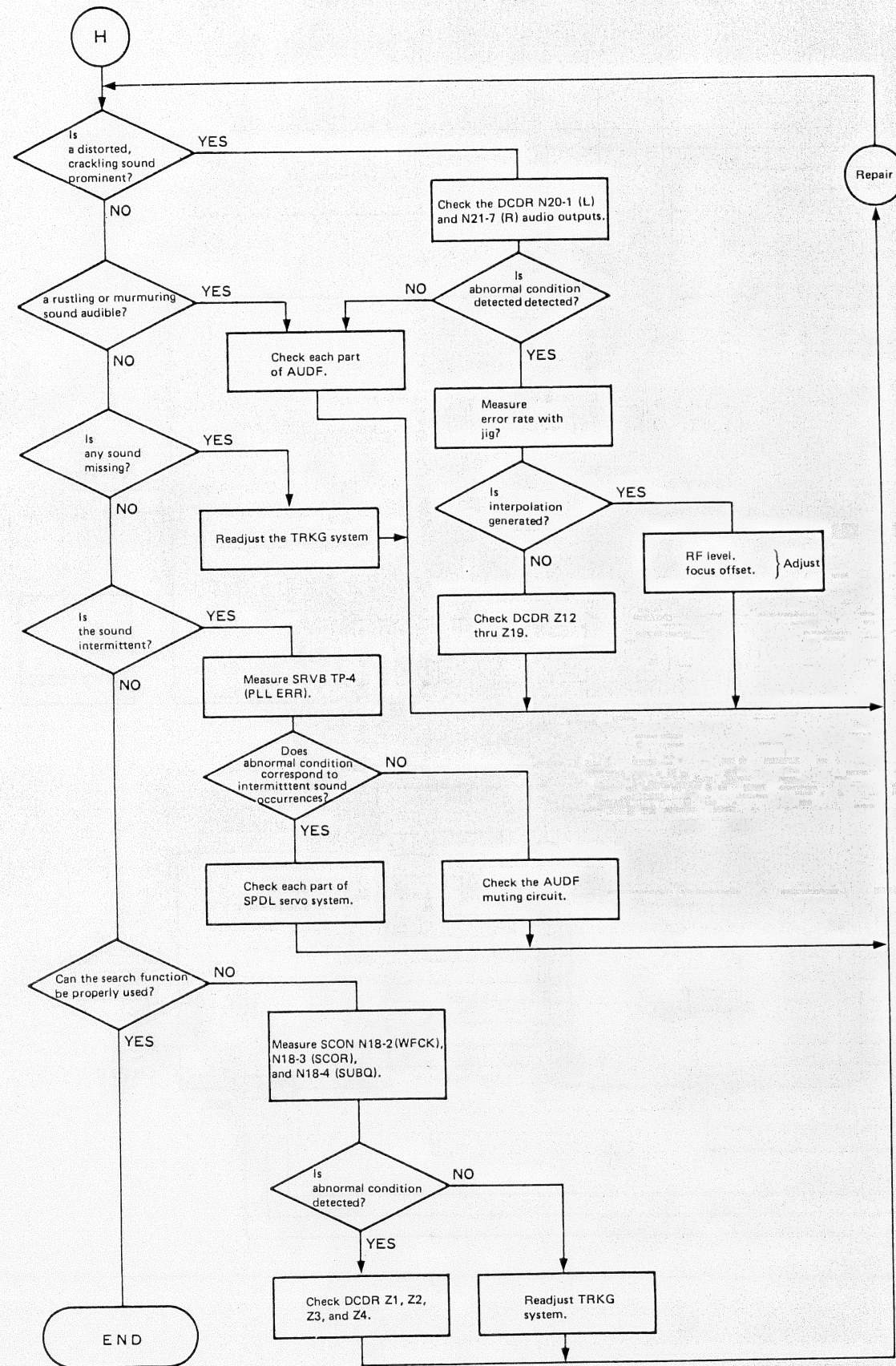






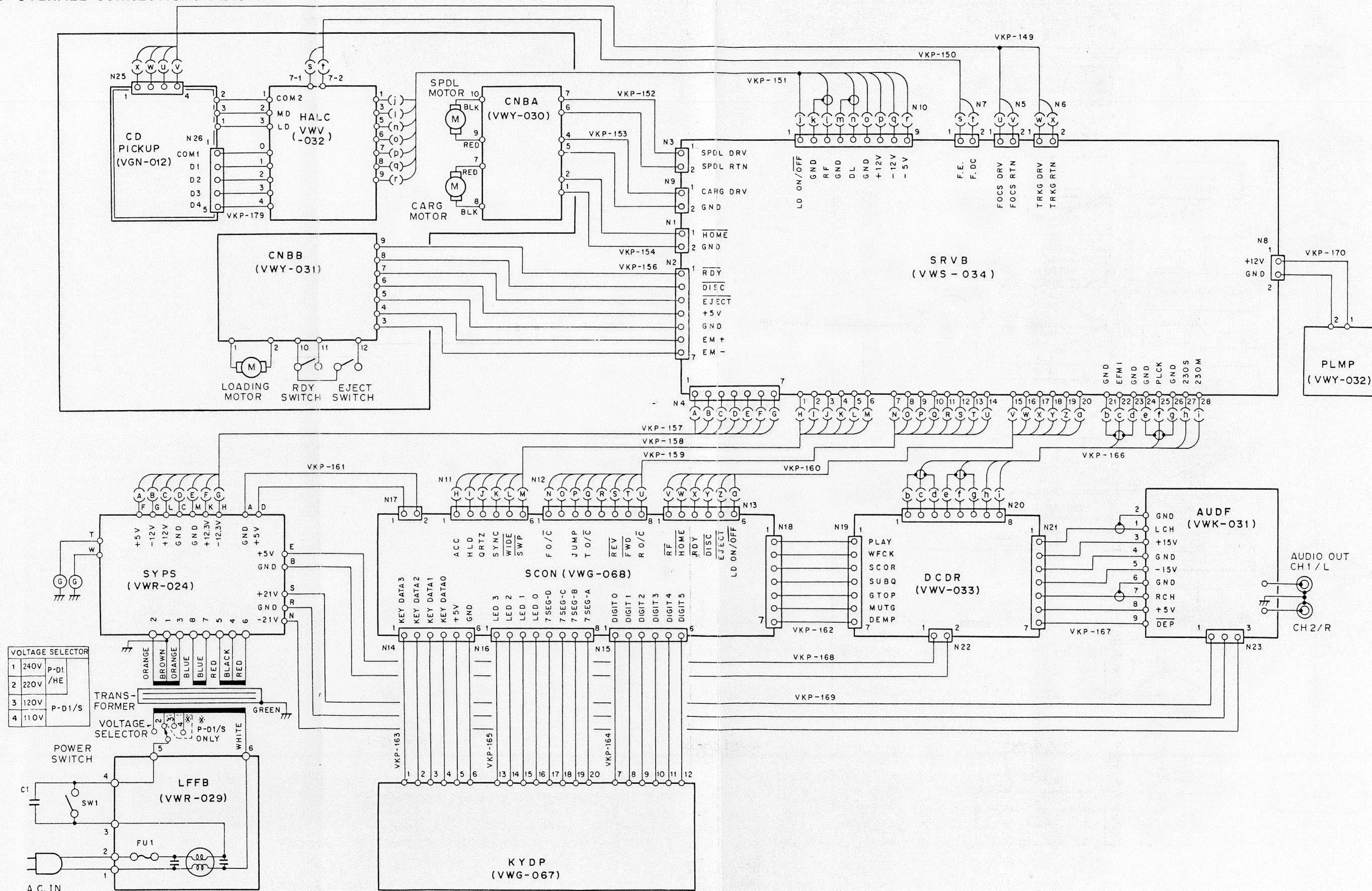






5. SCHEMATIC DIAGRAM, PCB PATTERNS, & PARTS LIST

5-1 OVERALL CONNECTIONS DIAGRAM



VOLTAGE SELECTOR IS FACTORY SET AT -
220V (P-D1/HE0)
110V (P-D1/S)

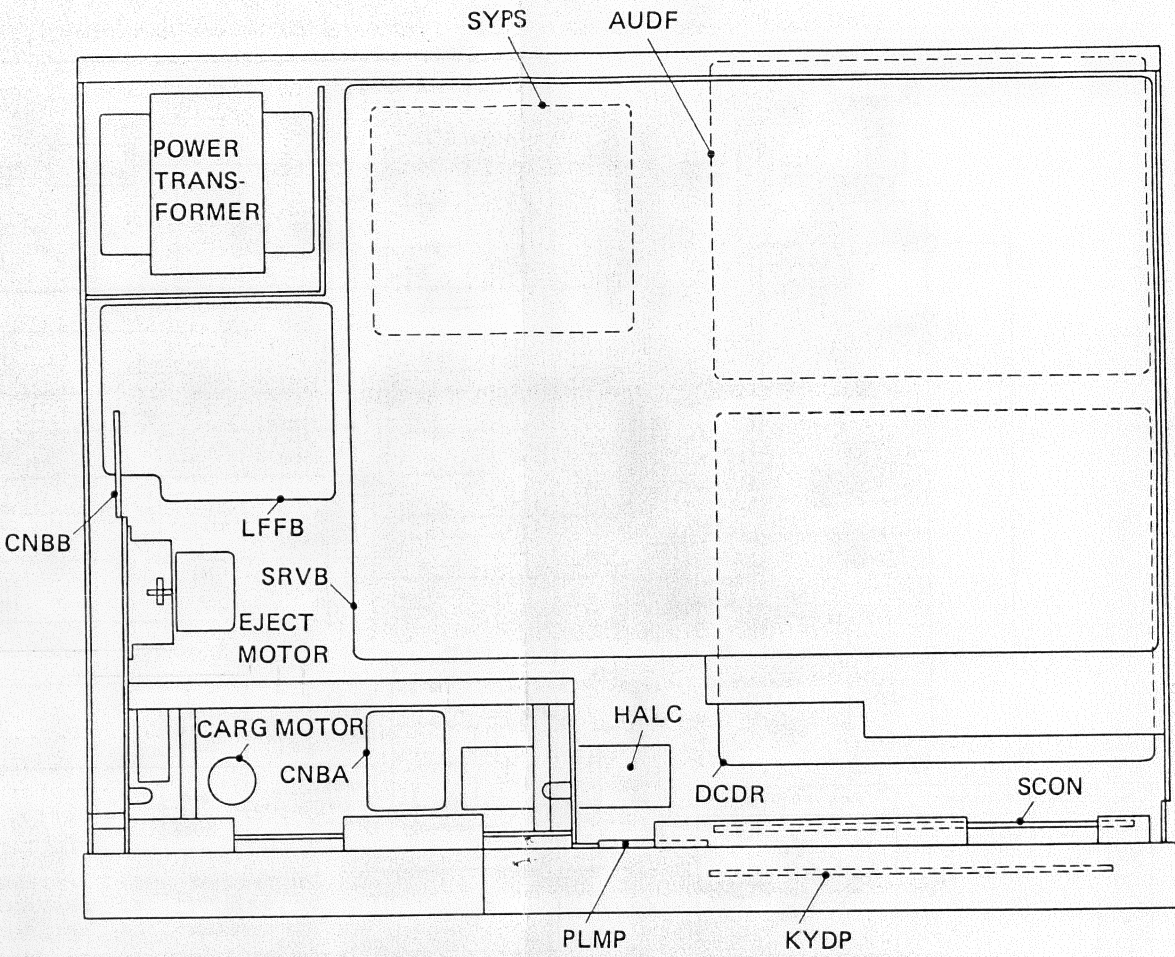
MISCELLANEOUS PARTS LIST

- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the symbols ****** and *****.
******: GENERALLY MOVES FASTER THAN *****.
This classification shall be adjusted by each distributor because it depends on model No., temperature, humidity, etc.

Parts List

Mark	Part No.	Symbol & Description	Mark	Part No.	Symbol & Description
	VWR-024	SYPS		VKP-154	Connector Ass'y N1-CNBA
Δ	VWR-029	LFFB		VKP-156	Connector Ass'y N2-CNBB
	VWV-032	HALC		VKP-157	Connector Ass'y N4-SYPS
	VWS-034	SRVB		VKP-158	Connector Ass'y N11-SRVB
	VWV-033	DCDR		VKP-159	Connector Ass'y N12-SRVB
	VWK-001	AUDF		VKP-160	Connector Ass'y N13-SRVB
	VWG-068	SCON		VKP-161	Connector Ass'y N17-SYPS
	VWG-067	KYDP		VKP-162	Connector Ass'y N18-N19
	VWY-030	CNBA		VKP-163	Connector Ass'y N14-KYDP
	VWY-031	CNBB		VKP-164	Connector Ass'y N15-KYDP
	VWY-032	PLMP		VKP-165	Connector Ass'y N16-KYDP
	VGN-012	Pickup		VKP-166	Connector Ass'y N20-SRVB
Δ	VTT-024	Power Transformer (HE model)		VKP-167	Connector Ass'y N21-AUDF
Δ	VTT-030	Power Transformer (S model)		VKP-168	Connector Ass'y N22-SYPS
	VXM-022	Spindle motor		VKP-169	Connector Ass'y N23-SYPS
	VXM-023	Carriage motor		VKP-170	Connector Ass'y N8-PLMP
	VXX-117	Eject motor			
Δ	VSA-006	SW1 Power switch (HE/S model)			
Δ	VSF-009	SW2, SW3			
Δ	VCG-018	C1			
Δ	VEK-012	FU1 Fuse 250V/250mA (HE model)			
Δ	VEK-013	FU1 Fuse 250V/800mA (S model)			
Δ	VDG-011	Power cord (HE model)			
Δ	VDG-013	Power cord (S model)			
	VKP-149	Connector Ass'y N5, N6-HALC			
	VKP-150	Connector Ass'y N7-HALC			
	VKP-151	Connector Ass'y N10-HALC			
	VKP-152	Connector Ass'y N3-CNBA			
	VKP-153	Connector Ass'y N9-CNBA			

5-2 LOCATION OF PCBS



ABBREVIATION LIST

SYPS	System Power Supply
LFFB	Line-filter & Fuse Board
HALC	Head Amp. & Laser Control
SRVB	Servo Board
DCDR	Decoder Board
AUDF	Audio & Filter Board
SCON	System Control Board
CSUB	Control Sub Board
KYDP	Key & Display Board
CNBA	Connector Board A
CNBB	Connector Board B
PLMP	Pilot Lamp Board

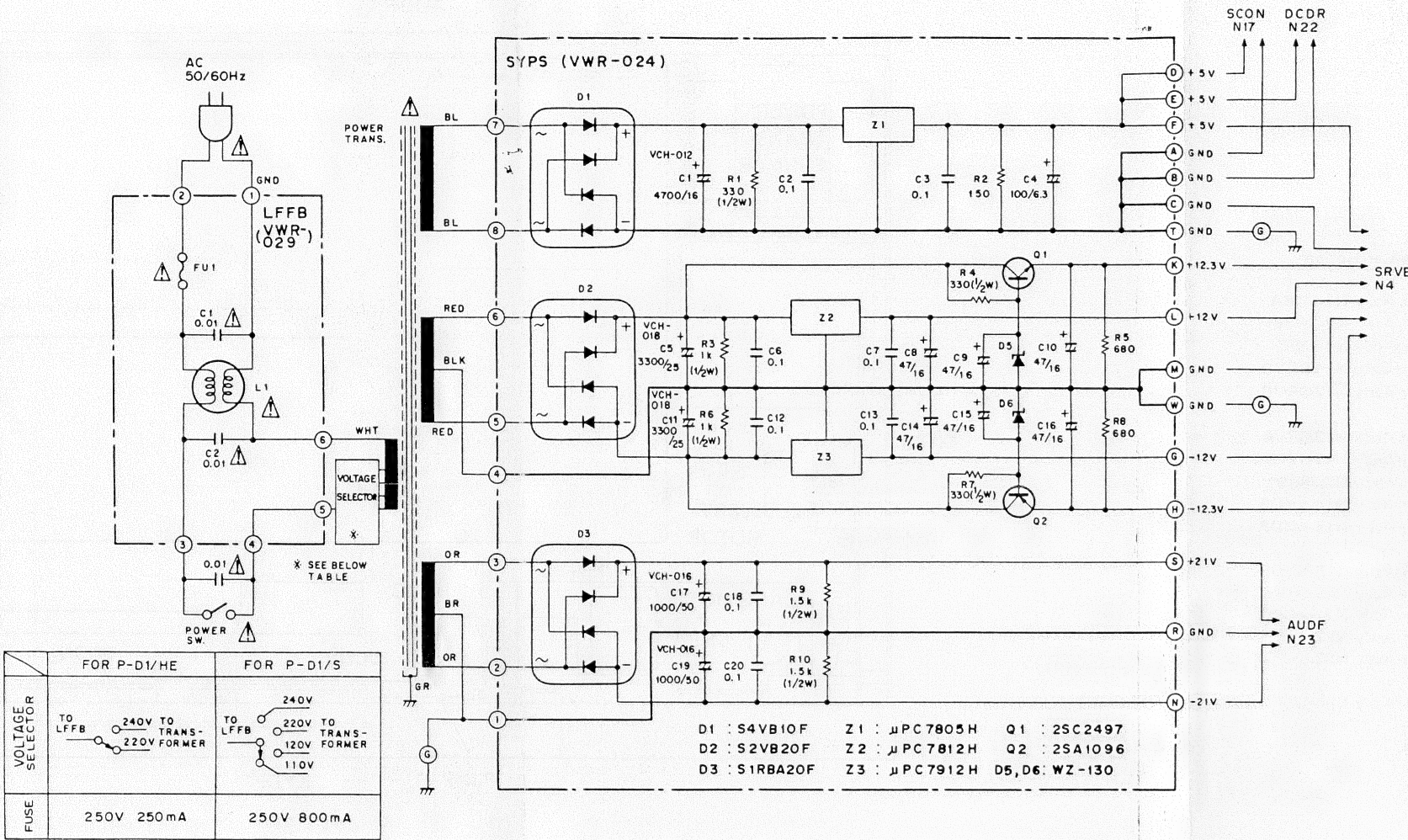
5-3 SYPS (VWR-024), LFFB (VWR-029)

A

B

C

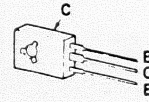
D



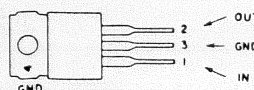
SYPS(VWR-024) Parts list		1
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
UPC7805H	Z 1	
UPC7812H	Z 2	
UPC7912H	Z 3	
2SC2497-P/Q	Q 1	
2SA1096-P/Q	Q 2	
S4VB10F	D 1	
S2VB20F	D 2	
S1RBA20F	D 3	
WZ-130	D 5, 6	
RS1/2PF000J	R 1, 3, 4, 6, 7, 9, 10	
RD1/4PS000J	R 2, 5, 8	
VCH-012	C 1 4700/16	
CKDYF104Z50	C 2, 3, 6, 7, 12, 13, 18, 20	
CEA101M6	C 4	
VCH-018	C 5, 11 3300/25	
CEA470M16	C 8-10, 14-16	
VCH-016	C 17, 18	

LFFB(VWR-029) Parts list		1
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
VCG-018	C 1, 2	
VTL-004	L 1	

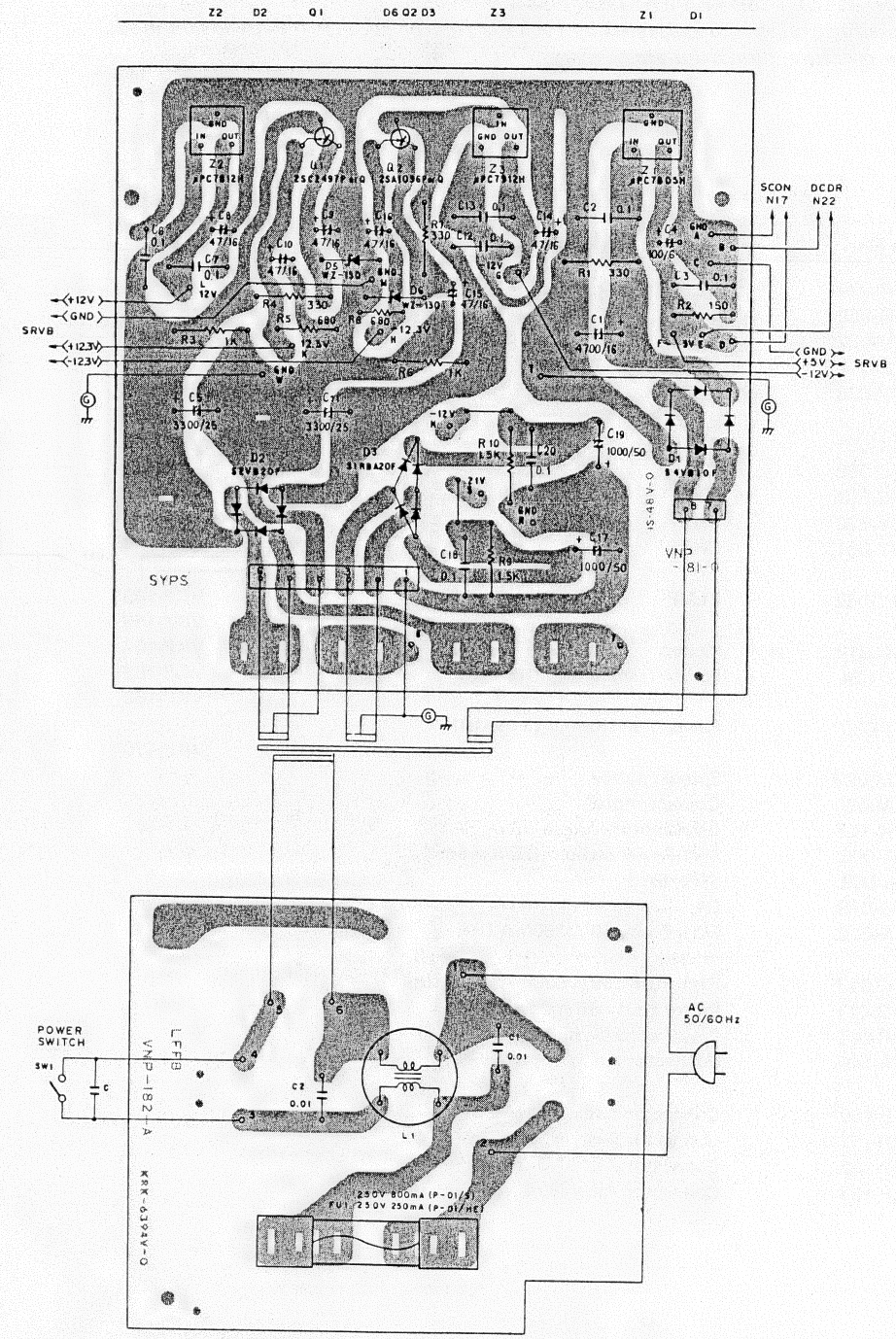
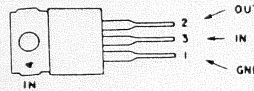
2SC2497
2SA1096



μ PC7805H
 μ PC7812H



μ PC7912H



A

B

C

D

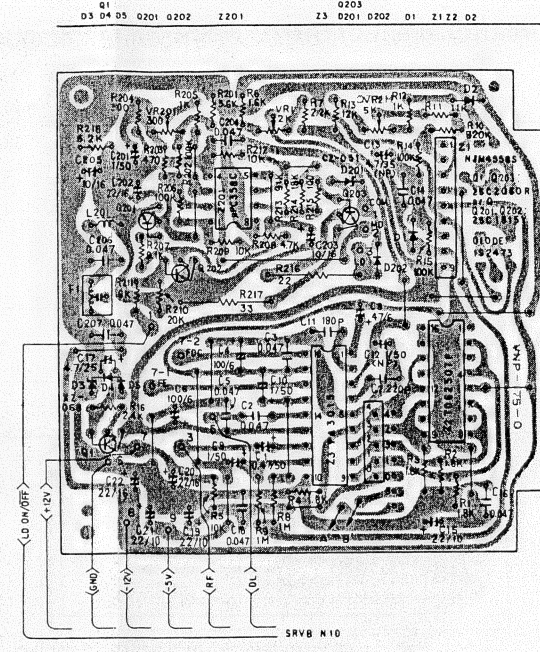
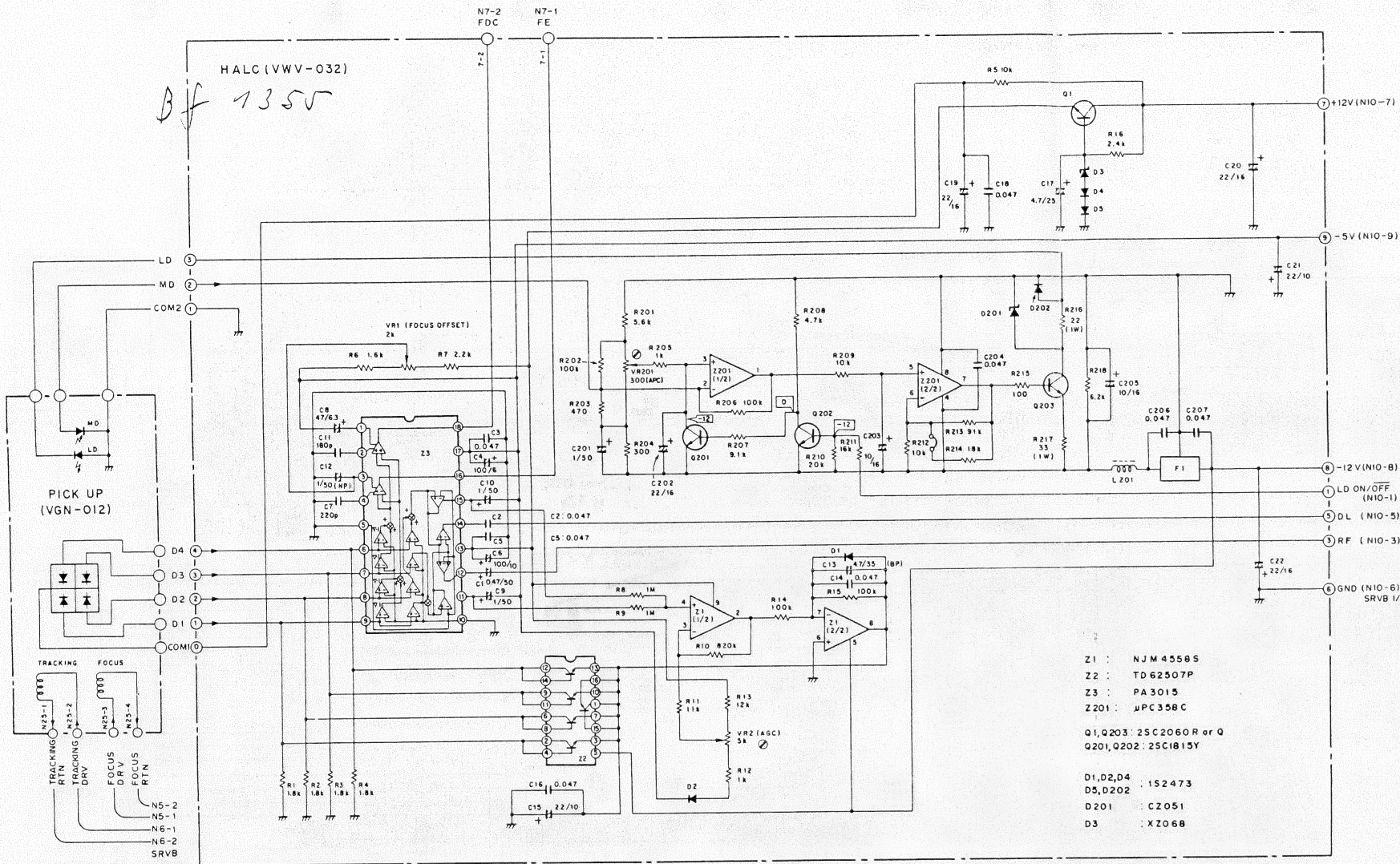
5-4 HALC (VWV-032)

A

B

C

D



A

B

C

D

HALC(VWV-032) Parts list

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
NJM4558S	Z 1
TD62507P	Z 2
PA3015	Z 3
UPC358C	Z 201
2SC2060-R/Q	Q 1,203
2SC1815-Y	Q 201,202
1S2473	D 1, 2, 4, 5,202
XZ-068	D 3
CZ-051	D 201
RD1/4VS182J	R 1- 4
RD1/4VS103J	R 5,209,212
RD1/4VS162J	R 6
RD1/4VS222J	R 7
RD1/4VS105J	R 8, 9
RD1/4VS824J	R 10
RD1/4VS113J	R 11
RD1/4VS102J	R 12,205
RD1/4VS123J	R 13
RD1/4VS104J	R 14, 15,202,206

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
RD1/4VS242J	R 16
RD1/4VS562J	R 201
RD1/4VS471J	R 203
RD1/4VS381J	R 204
RD1/4VS912J	R 207
RD1/4VS472J	R 208
RD1/4VS203J	R 210
RD1/4VS163J	R 211
RD1/4VS913J	R 213
RD1/4VS183J	R 214
RD1/4VS101J	R 215
VCN-083	R 216
VCN-084	R 217
RD1/4VS622J	R 218
VCR-041	VR 1
VCR-042	VR 2
VCR-040	VR201

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
CEAR47M50	C 1
VCG-003	C 2, 3, 5, 14, 16, 18,204, 206,207
CEA101M6	C 4
CEA101M10	C 6
CCDSL221J50	C 7
CEA470M6	C 8
CEA010M50	C 9, 10,201
CCDSL181J50	C 11
CEA010M50NP	C 12
CEA4R7M35NP	C 13
CEA220M10	C 15, 21
CEA4R7M25	C 17
CEA220M16	C 19, 20, 22,202
CEA100M16	C 203,205
VTH-007	L 201
VTH-005	VL 1

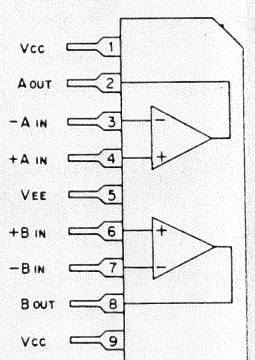
2SC2060



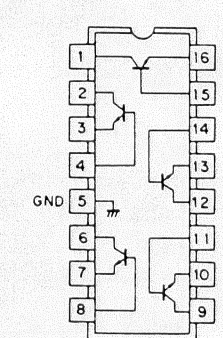
2SA1015
2SC1815



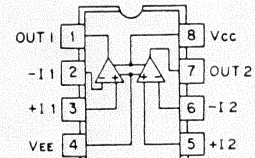
NJM4558S



TD62507P



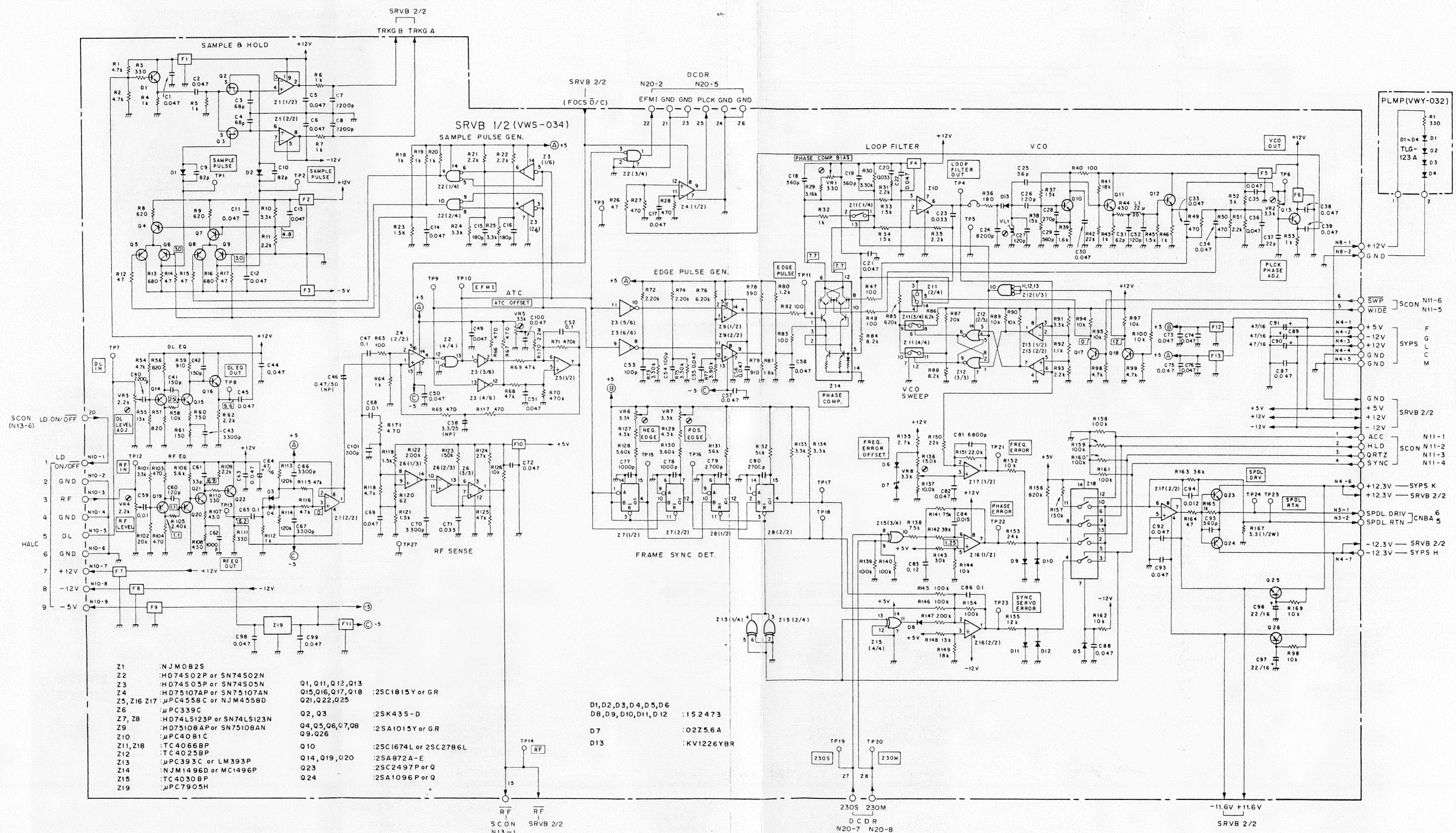
μPC358C



Choke coil

5-5 SRVB (VWS-034) 1/2, PLMP (VWY-032)

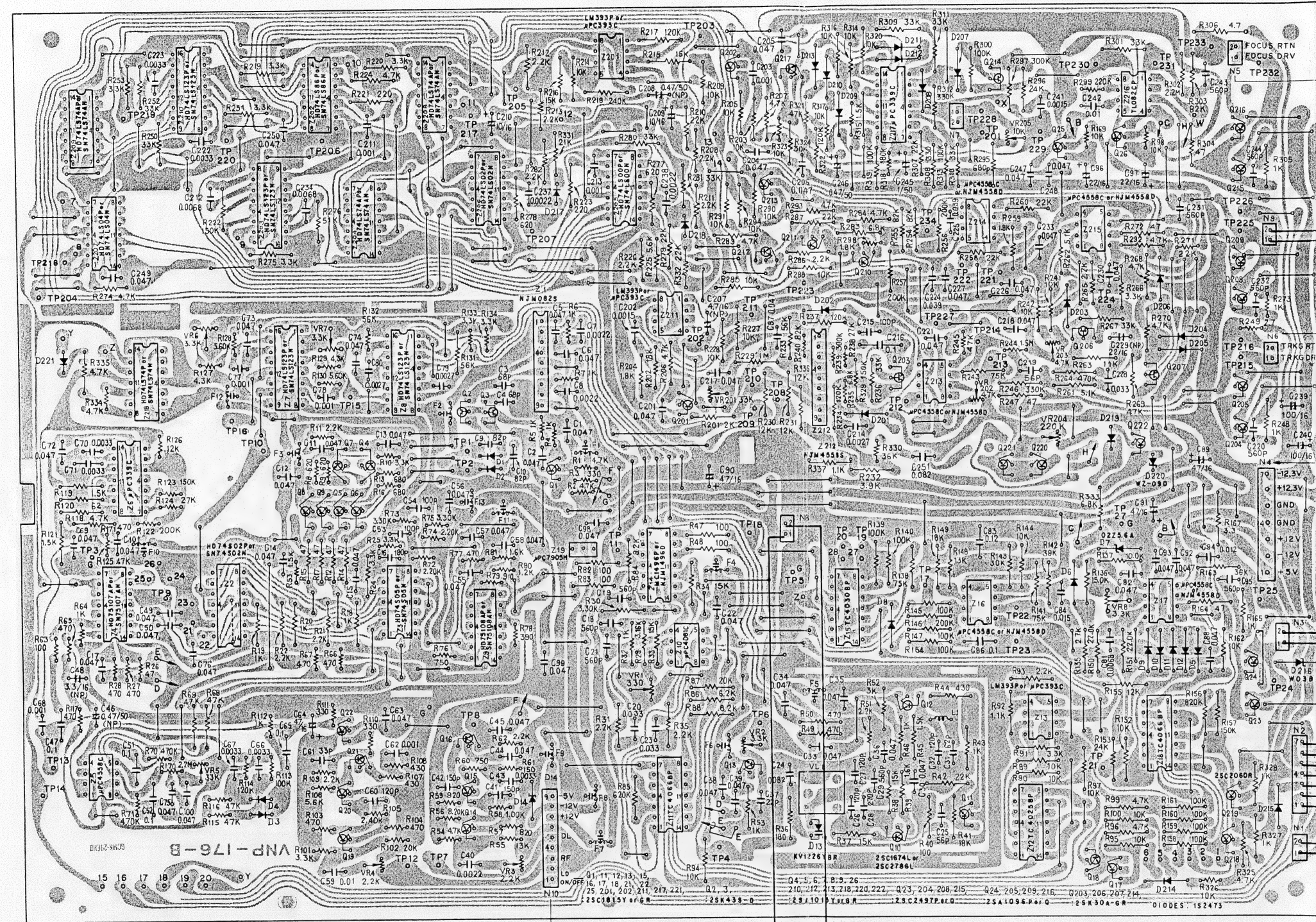
Note: Other Half Circuitdiagram of SRVB is Shown in Paragraph 5-6.



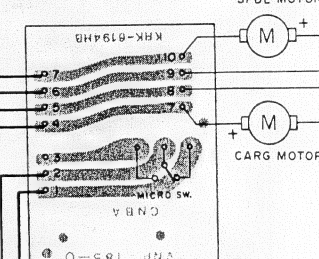
1 2 3 4 5

Z207 Z218 Z210 Z2 Z03 Z203 Q8 Q9 Q19 Q21 Q4 Z3 Z208 Q14 Z9 Q3 Z1 Q1 Z19 Z205 Z211 Z201 Z14 Z11 Z10 Q202 Q13 Q212 Q217 Q213 Q210 Q201 Q10 Q12 Q208 Q211 Q212 Q217 Q218 Q219 Q220 Q221 Q222 Q223 Q224 Q225 Q226 Q227 Q228 Q229 Q230 Q231 Q232 Q233 Q234 Q235 Q236 Q237 Q238 Q239 Q240 Q241 Q242 Q243 Q244 Q245 Q246 Q247 Q248 Q249 Q250 Q251 Q252 Q253 Q254 Q255 Q256 Q257 Q258 Q259 Q260 Q261 Q262 Q263 Q264 Q265 Q266 Q267 Q268 Q269 Q270 Q271 Q272 Q273 Q274 Q275 Q276 Q277 Q278 Q279 Q280 Q281 Q282 Q283 Q284 Q285 Q286 Q287 Q288 Q289 Q290 Q291 Q292 Q293 Q294 Q295 Q296 Q297 Q298 Q299 Q300 Q301 Q302 Q303 Q304 Q305 Q306 Q307 Q308 Q309 Q310 Q311 Q312 Q313 Q314 Q315 Q316 Q317 Q318 Q319 Q320 Q321 Q322 Q323 Q324 Q325 Q326 Q327 Q328 Q329 Q330 Q331 Q332 Q333 Q334 Q335 Q336 Q337 Q338 Q339 Q340 Q341 Q342 Q343 Q344 Q345 Q346 Q347 Q348 Q349 Q350 Q351 Q352 Q353 Q354 Q355 Q356 Q357 Q358 Q359 Q360 Q361 Q362 Q363 Q364 Q365 Q366 Q367 Q368 Q369 Q370 Q371 Q372 Q373 Q374 Q375 Q376 Q377 Q378 Q379 Q380 Q381 Q382 Q383 Q384 Q385 Q386 Q387 Q388 Q389 Q390 Q391 Q392 Q393 Q394 Q395 Q396 Q397 Q398 Q399 Q400 Q401 Q402 Q403 Q404 Q405 Q406 Q407 Q408 Q409 Q410 Q411 Q412 Q413 Q414 Q415 Q416 Q417 Q418 Q419 Q420 Q421 Q422 Q423 Q424 Q425 Q426 Q427 Q428 Q429 Q430 Q431 Q432 Q433 Q434 Q435 Q436 Q437 Q438 Q439 Q440 Q441 Q442 Q443 Q444 Q445 Q446 Q447 Q448 Q449 Q450 Q451 Q452 Q453 Q454 Q455 Q456 Q457 Q458 Q459 Q460 Q461 Q462 Q463 Q464 Q465 Q466 Q467 Q468 Q469 Q470 Q471 Q472 Q473 Q474 Q475 Q476 Q477 Q478 Q479 Q480 Q481 Q482 Q483 Q484 Q485 Q486 Q487 Q488 Q489 Q490 Q491 Q492 Q493 Q494 Q495 Q496 Q497 Q498 Q499 Q500 Q501 Q502 Q503 Q504 Q505 Q506 Q507 Q508 Q509 Q510 Q511 Q512 Q513 Q514 Q515 Q516 Q517 Q518 Q519 Q520 Q521 Q522 Q523 Q524 Q525 Q526 Q527 Q528 Q529 Q530 Q531 Q532 Q533 Q534 Q535 Q536 Q537 Q538 Q539 Q540 Q541 Q542 Q543 Q544 Q545 Q546 Q547 Q548 Q549 Q550 Q551 Q552 Q553 Q554 Q555 Q556 Q557 Q558 Q559 Q560 Q561 Q562 Q563 Q564 Q565 Q566 Q567 Q568 Q569 Q570 Q571 Q572 Q573 Q574 Q575 Q576 Q577 Q578 Q579 Q580 Q581 Q582 Q583 Q584 Q585 Q586 Q587 Q588 Q589 Q590 Q591 Q592 Q593 Q594 Q595 Q596 Q597 Q598 Q599 Q600 Q601 Q602 Q603 Q604 Q605 Q606 Q607 Q608 Q609 Q610 Q611 Q612 Q613 Q614 Q615 Q616 Q617 Q618 Q619 Q620 Q621 Q622 Q623 Q624 Q625 Q626 Q627 Q628 Q629 Q630 Q631 Q632 Q633 Q634 Q635 Q636 Q637 Q638 Q639 Q640 Q641 Q642 Q643 Q644 Q645 Q646 Q647 Q648 Q649 Q650 Q651 Q652 Q653 Q654 Q655 Q656 Q657 Q658 Q659 Q660 Q661 Q662 Q663 Q664 Q665 Q666 Q667 Q668 Q669 Q670 Q671 Q672 Q673 Q674 Q675 Q676 Q677 Q678 Q679 Q680 Q681 Q682 Q683 Q684 Q685 Q686 Q687 Q688 Q689 Q690 Q691 Q692 Q693 Q694 Q695 Q696 Q697 Q698 Q699 Q700 Q701 Q702 Q703 Q704 Q705 Q706 Q707 Q708 Q709 Q710 Q711 Q712 Q713 Q714 Q715 Q716 Q717 Q718 Q719 Q720 Q721 Q722 Q723 Q724 Q725 Q726 Q727 Q728 Q729 Q730 Q731 Q732 Q733 Q734 Q735 Q736 Q737 Q738 Q739 Q740 Q741 Q742 Q743 Q744 Q745 Q746 Q747 Q748 Q749 Q750 Q751 Q752 Q753 Q754 Q755 Q756 Q757 Q758 Q759 Q760 Q761 Q762 Q763 Q764 Q765 Q766 Q767 Q768 Q769 Q770 Q771 Q772 Q773 Q774 Q775 Q776 Q777 Q778 Q779 Q780 Q781 Q782 Q783 Q784 Q785 Q786 Q787 Q788 Q789 Q790 Q791 Q792 Q793 Q794 Q795 Q796 Q797 Q798 Q799 Q800 Q801 Q802 Q803 Q804 Q805 Q806 Q807 Q808 Q809 Q810 Q811 Q812 Q813 Q814 Q815 Q816 Q817 Q818 Q819 Q820 Q821 Q822 Q823 Q824 Q825 Q826 Q827 Q828 Q829 Q830 Q831 Q832 Q833 Q834 Q835 Q836 Q837 Q838 Q839 Q840 Q841 Q842 Q843 Q844 Q845 Q846 Q847 Q848 Q849 Q850 Q851 Q852 Q853 Q854 Q855 Q856 Q857 Q858 Q859 Q860 Q861 Q862 Q863 Q864 Q865 Q866 Q867 Q868 Q869 Q870 Q871 Q872 Q873 Q874 Q875 Q876 Q877 Q878 Q879 Q880 Q881 Q882 Q883 Q884 Q885 Q886 Q887 Q888 Q889 Q890 Q891 Q892 Q893 Q894 Q895 Q896 Q897 Q898 Q899 Q900 Q901 Q902 Q903 Q904 Q905 Q906 Q907 Q908 Q909 Q910 Q911 Q912 Q913 Q914 Q915 Q916 Q917 Q918 Q919 Q920 Q921 Q922 Q923 Q924 Q925 Q926 Q927 Q928 Q929 Q930 Q931 Q932 Q933 Q934 Q935 Q936 Q937 Q938 Q939 Q940 Q941 Q942 Q943 Q944 Q945 Q946 Q947 Q948 Q949 Q950 Q951 Q952 Q953 Q954 Q955 Q956 Q957 Q958 Q959 Q960 Q961 Q962 Q963 Q964 Q965 Q966 Q967 Q968 Q969 Q970 Q971 Q972 Q973 Q974 Q975 Q976 Q977 Q978 Q979 Q980 Q981 Q982 Q983 Q984 Q985 Q986 Q987 Q988 Q989 Q990 Q991 Q992 Q993 Q994 Q995 Q996 Q997 Q998 Q999 1000

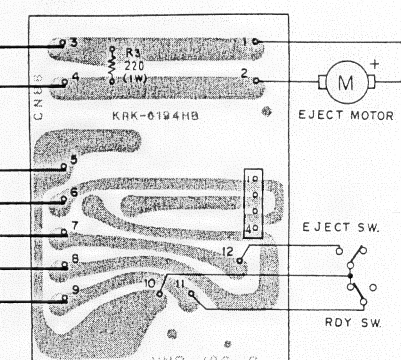
SRVB



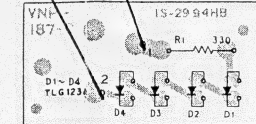
CNBA



CNBB



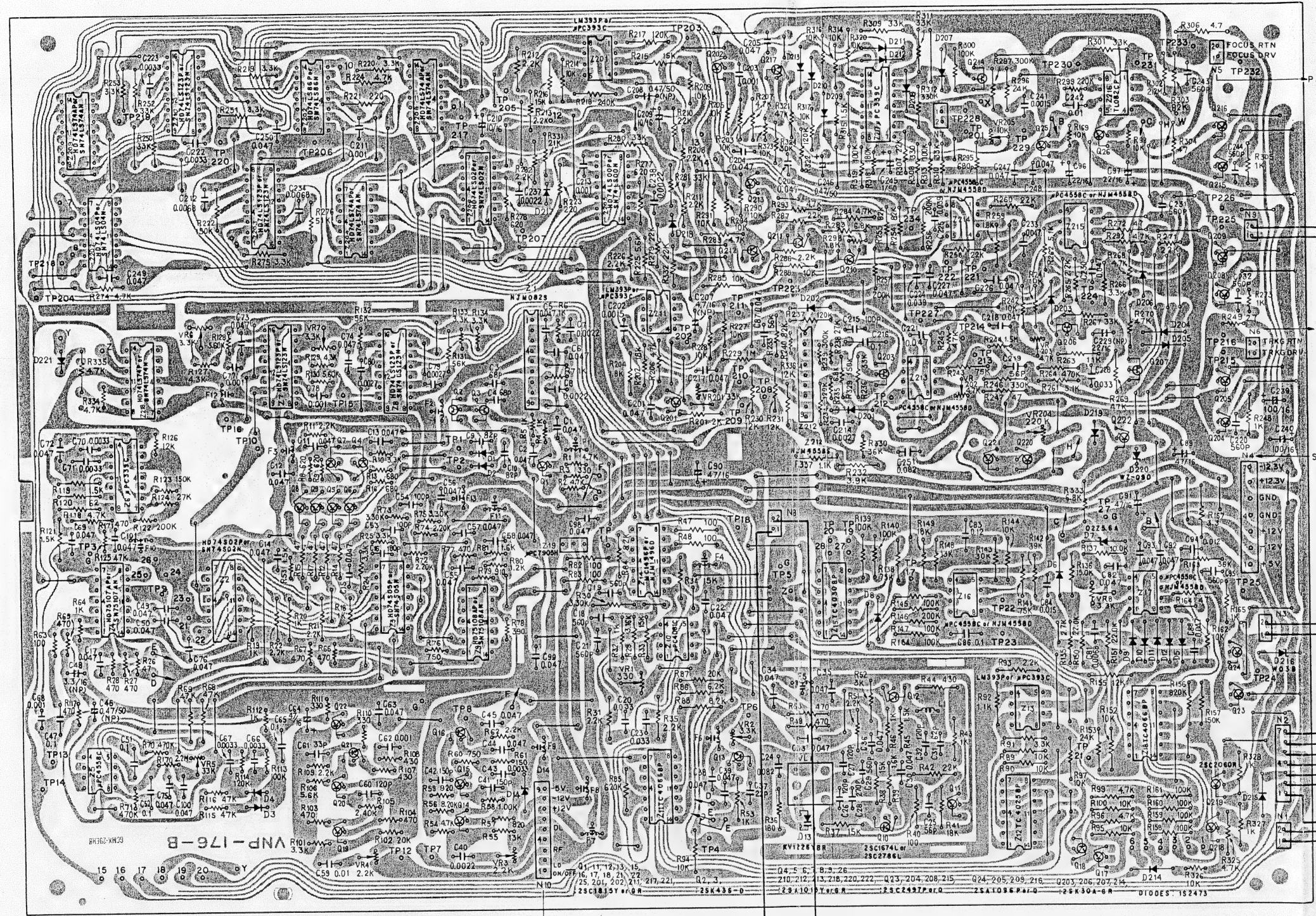
PLMP



1 2 3 4 5

Z207 Z218 Z210 Z2 Z03 Z03 Q8 Q9 Q19 Q21 Q4 Z3 Z208 Q14 Z9 Q3 Z1 Q1 Z19 Z205 Z14 Z11 Z10 Z213 Z211 Z212 Z213 Z214 Z215 Z216 Z217 Z218 Z219 Z220 Z221 Z222 Z223 Z224 Z225 Z226 Z227 Z228 Z229 Z230 Z231 Z232 Z233 Z234 Z235 Z236 Z237 Z238 Z239 Z240 Z241 Z242 Z243 Z244 Z245 Z246 Z247 Z248 Z249 Z250 Z251 Z252 Z253 Z254 Z255 Z256 Z257 Z258 Z259 Z260 Z261 Z262 Z263 Z264 Z265 Z266 Z267 Z268 Z269 Z270 Z271 Z272 Z273 Z274 Z275 Z276 Z277 Z278 Z279 Z280 Z281 Z282 Z283 Z284 Z285 Z286 Z287 Z288 Z289 Z290 Z291 Z292 Z293 Z294 Z295 Z296 Z297 Z298 Z299 Z300 Z301 Z302 Z303 Z304 Z305 Z306 Z307 Z308 Z309 Z310 Z311 Z312 Z313 Z314 Z315 Z316 Z317 Z318 Z319 Z320 Z321 Z322 Z323 Z324 Z325 Z326 Z327 Z328 Z329 Z330 Z331 Z332 Z333 Z334 Z335 Z336 Z337 Z338 Z339 Z340 Z341 Z342 Z343 Z344 Z345 Z346 Z347 Z348 Z349 Z350 Z351 Z352 Z353 Z354 Z355 Z356 Z357 Z358 Z359 Z360 Z361 Z362 Z363 Z364 Z365 Z366 Z367 Z368 Z369 Z370 Z371 Z372 Z373 Z374 Z375 Z376 Z377 Z378 Z379 Z380 Z381 Z382 Z383 Z384 Z385 Z386 Z387 Z388 Z389 Z390 Z391 Z392 Z393 Z394 Z395 Z396 Z397 Z398 Z399 Z400 Z401 Z402 Z403 Z404 Z405 Z406 Z407 Z408 Z409 Z410 Z411 Z412 Z413 Z414 Z415 Z416 Z417 Z418 Z419 Z420 Z421 Z422 Z423 Z424 Z425 Z426 Z427 Z428 Z429 Z430 Z431 Z432 Z433 Z434 Z435 Z436 Z437 Z438 Z439 Z440 Z441 Z442 Z443 Z444 Z445 Z446 Z447 Z448 Z449 Z450 Z451 Z452 Z453 Z454 Z455 Z456 Z457 Z458 Z459 Z460 Z461 Z462 Z463 Z464 Z465 Z466 Z467 Z468 Z469 Z470 Z471 Z472 Z473 Z474 Z475 Z476 Z477 Z478 Z479 Z480 Z481 Z482 Z483 Z484 Z485 Z486 Z487 Z488 Z489 Z490 Z491 Z492 Z493 Z494 Z495 Z496 Z497 Z498 Z499 Z500 Z501 Z502 Z503 Z504 Z505 Z506 Z507 Z508 Z509 Z510 Z511 Z512 Z513 Z514 Z515 Z516 Z517 Z518 Z519 Z520 Z521 Z522 Z523 Z524 Z525 Z526 Z527 Z528 Z529 Z530 Z531 Z532 Z533 Z534 Z535 Z536 Z537 Z538 Z539 Z540 Z541 Z542 Z543 Z544 Z545 Z546 Z547 Z548 Z549 Z550 Z551 Z552 Z553 Z554 Z555 Z556 Z557 Z558 Z559 Z560 Z561 Z562 Z563 Z564 Z565 Z566 Z567 Z568 Z569 Z570 Z571 Z572 Z573 Z574 Z575 Z576 Z577 Z578 Z579 Z580 Z581 Z582 Z583 Z584 Z585 Z586 Z587 Z588 Z589 Z590 Z591 Z592 Z593 Z594 Z595 Z596 Z597 Z598 Z599 Z600 Z601 Z602 Z603 Z604 Z605 Z606 Z607 Z608 Z609 Z610 Z611 Z612 Z613 Z614 Z615 Z616 Z617 Z618 Z619 Z620 Z621 Z622 Z623 Z624 Z625 Z626 Z627 Z628 Z629 Z630 Z631 Z632 Z633 Z634 Z635 Z636 Z637 Z638 Z639 Z640 Z641 Z642 Z643 Z644 Z645 Z646 Z647 Z648 Z649 Z650 Z651 Z652 Z653 Z654 Z655 Z656 Z657 Z658 Z659 Z660 Z661 Z662 Z663 Z664 Z665 Z666 Z667 Z668 Z669 Z670 Z671 Z672 Z673 Z674 Z675 Z676 Z677 Z678 Z679 Z680 Z681 Z682 Z683 Z684 Z685 Z686 Z687 Z688 Z689 Z690 Z691 Z692 Z693 Z694 Z695 Z696 Z697 Z698 Z699 Z700 Z701 Z702 Z703 Z704 Z705 Z706 Z707 Z708 Z709 Z710 Z711 Z712 Z713 Z714 Z715 Z716 Z717 Z718 Z719 Z720 Z721 Z722 Z723 Z724 Z725 Z726 Z727 Z728 Z729 Z730 Z731 Z732 Z733 Z734 Z735 Z736 Z737 Z738 Z739 Z740 Z741 Z742 Z743 Z744 Z745 Z746 Z747 Z748 Z749 Z750 Z751 Z752 Z753 Z754 Z755 Z756 Z757 Z758 Z759 Z760 Z761 Z762 Z763 Z764 Z765 Z766 Z767 Z768 Z769 Z770 Z771 Z772 Z773 Z774 Z775 Z776 Z777 Z778 Z779 Z780 Z781 Z782 Z783 Z784 Z785 Z786 Z787 Z788 Z789 Z790 Z791 Z792 Z793 Z794 Z795 Z796 Z797 Z798 Z799 Z800 Z801 Z802 Z803 Z804 Z805 Z806 Z807 Z808 Z809 Z810 Z811 Z812 Z813 Z814 Z815 Z816 Z817 Z818 Z819 Z820 Z821 Z822 Z823 Z824 Z825 Z826 Z827 Z828 Z829 Z830 Z831 Z832 Z833 Z834 Z835 Z836 Z837 Z838 Z839 Z840 Z841 Z842 Z843 Z844 Z845 Z846 Z847 Z848 Z849 Z850 Z851 Z852 Z853 Z854 Z855 Z856 Z857 Z858 Z859 Z860 Z861 Z862 Z863 Z864 Z865 Z866 Z867 Z868 Z869 Z870 Z871 Z872 Z873 Z874 Z875 Z876 Z877 Z878 Z879 Z880 Z881 Z882 Z883 Z884 Z885 Z886 Z887 Z888 Z889 Z890 Z891 Z892 Z893 Z894 Z895 Z896 Z897 Z898 Z899 Z900 Z901 Z902 Z903 Z904 Z905 Z906 Z907 Z908 Z909 Z910 Z911 Z912 Z913 Z914 Z915 Z916 Z917 Z918 Z919 Z920 Z921 Z922 Z923 Z924 Z925 Z926 Z927 Z928 Z929 Z930 Z931 Z932 Z933 Z934 Z935 Z936 Z937 Z938 Z939 Z940 Z941 Z942 Z943 Z944 Z945 Z946 Z947 Z948 Z949 Z950 Z951 Z952 Z953 Z954 Z955 Z956 Z957 Z958 Z959 Z960 Z961 Z962 Z963 Z964 Z965 Z966 Z967 Z968 Z969 Z970 Z971 Z972 Z973 Z974 Z975 Z976 Z977 Z978 Z979 Z980 Z981 Z982 Z983 Z984 Z985 Z986 Z987 Z988 Z989 Z990 Z991 Z992 Z993 Z994 Z995 Z996 Z997 Z998 Z999

SRV B



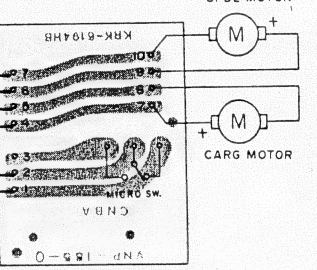
PICKUP

PICKUP

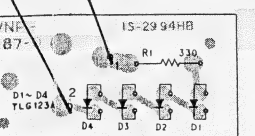
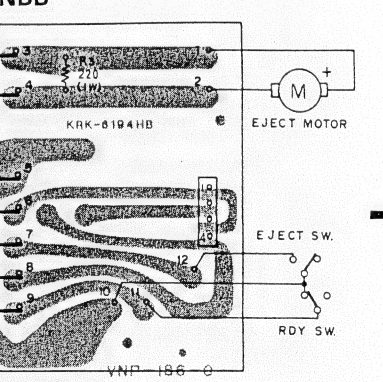
SYPS

PICKUP

CNBA



CNBB



PLMP

SRVB(VWS-034) Parts list		1
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NJM082S	Z 1	
HD74S02P	Z 2	
(SN74S02N)		
HD74S05P	Z 3	
(SN74S05N)		
HD75107AP	Z 4	
(SN75107AN)		
UPC4558C	Z 5	
UPC339C	Z 6,217	
HD74LS123P	Z 7, 8,203,210	
(SN74LS123N)		
HD75108AP	Z 9	
(SN75108AN)		
UPC4081C	Z 10	
TC4066BP	Z 11, 18	
TC4025BP	Z 12	
LM393P	Z 13,201,211	
MC1496P	Z 14	
(NJM1496D)		
TC4030BP	Z 15	
UPC4558C	Z 16, 17,213-215	
(NJM4558D)		
UPC7905H	Z 19	
HD74LS86P	Z 202	
(SN74LS86N)		
HD74LS74AP	Z 204,208,209,218	
(SN74LS74AN)		
HD74LS00P	Z 205	
(SN74LS00N)		
HD74LS02P	Z 206	
(SN74LS02N)		
HD74LS04P	Z 207	
(SN74LS04N)		
NJM4558S	Z 212	
TL082CP	Z 216	
2SC1815-Y/GR	Q 1, 11- 13, 15- 18, 21, 22, 25,201,202,211,217,221	
2SK43S-D	Q 2, 3	
2SC1674-L	Q 10	
(2SC2786-L)		
2SA872A-E	Q 14, 19, 20	
2SC2497-P/Q	Q 23,204,208,215	
2SA1096-P/Q	Q 24,205,209,216	
2SK30A-GR	Q 203,206,207,214	
2SC2060R	Q 219	
1SS133T-77	D 1, 3, 4	
1S2473	D 2, 5, 8- 12,201-215,217-219,221	
02Z5.6A	D 7	
KV1226YBR	D 13	
BZ140	D 14	
W03B	D 216	
WZ-090	D 220	
RD1/4PS000J	R 1- 7, 10, 11, 23, 25, 28, 54, 55, 59, 62- 69, 79, 80, 98,101,102,106,109,110,112-117,122,124-126,131-134,138-143,145-147,153,154,156-161,163,169,217,218,222,234-237,240,243,245,246,250,252,254-256,264,267,269,270,276,279-282,287,297,299-303,307,309,310,312,313,318,319,321,323,324,326,331,332	

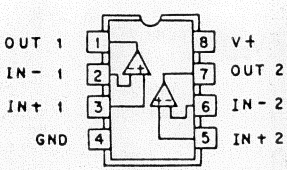
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(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
RD1/4VS000J	R 8, 9, 13, 16, 26, 27, 78, 81,111,123,170,238,239,244,271,273,274,298,330,334,232,257,263,283,291,295,308,315,322,325,329,333,335,337	
RD1/4PS000J	R 12, 14, 15, 17- 22, 24, 31- 35, 37, 38, 40- 43, 45- 51, 53, 82- 84, 88- 91, 93- 97, 99,100,118,119,121,144,149,152,155,164,165,171,202-209,211-215,219,220,224,226-228,230,231,241,242,247,248,251,253,258-262,265,266,268,272,275,277,278,284-286,288-290,292-294,304,305,314,316,317,320,327,328,336	
RN1/4PR0000F	R 29, 30, 56- 58, 60, 61, 72- 77,103-105,107,108,128,130,136,137,150,151	
RD1/4PS000J	R 36, 39, 44, 52, 85- 87, 92, 120,135,148,162,171,201,210,216,221,223,225,229,232,257,263,283,291,295,308,315,322,325,329,333,335,337	
RD1/4PS000J	R 70, 71, 3- 7, 10, 11, 23, 25, 28, 54, 55, 59, 62- 69, 79, 80, 98,101,102,106,109,110,112-117,122,124-126,131-134,138-143,145-147,153,154,156-161,163,169,217,218,222,234-237,240,243,245,246,250,252,254-256,264,267,269,270,276,279-282,287,296,297,299-303,307,309,310,312,313,318,319,321,323,324,326,331,332	
VCN-085	R 127,129	
RD1/2PF0R0J	R 167,249,306	
VCR-035	VR 1	330 ohm
VCP-046	VR 2	3.3 kohm
VCP-045	VR 3, 4	2.2 kohm
VCP-050	VR 5,201	33 kohm
VCP-036	VR 6- 8	3.3 kohm
VCP-047	VR202,203	4.7 kohm
VCP-053	VR204	220 kohm
VCP-048	VR205	10 kohm
VCG-023	C 1, 2, 6, 11- 13, 17, 21, 22, 33- 35, 38, 39, 44, 45, 55- 58, 63, 69, 73- 75, 82, 87, 92, 93, 98-100,205,221,227,230,233,248,250	
CQSH680J50	C 3, 4	
VCG-003	C 5, 14, 30, 36, 49, 50, 72, 76, 88,206,218,226,249	
VCG-022	C 7, 8, 40	
CCDSL820J50	C 9, 10	
CCDSL181J50	C 15, 16	
CCDSL561J50	C 19, 95,220,231,232,243,244	
VCE-015	C 20, 23	0.0033 u

SRVB(VWS-034) Parts list		3
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
CQMA822J50	C 24	
CCDSL560J50	C 25,219	
CCDRH121J50	C 26, 27	
CCDRH271J50	C 28	
CQSH561J50	C 29	
CCDSL620J50	C 31	
CCDSL121J50	C 32	
CCDSL220J50	C 37	
VCE-012	C 41	150 p
CCDSL151J50	C 42	
VCE-014	C 43	3300 p
CEAR47M50NP	C 46,208	
CQMA104J50	C 47, 51, 52, 65, 86,216	
CEA3R3M16NP	C 48	
VCE-010	C 53, 54	100 p
CKDYF103Z50	C 59	
VCE-011	C 60	
CCDSL561J50	C 61	
VCE-013	C 62	1000 p
CEA470M16	C 64, 89- 91	
CQMA332J50	C 66, 67,222,223	
VCG-019	C 68	
CQMA332J50	C 70	
CQMA333J50	C 71	
CQSH102J50	C 77, 78	
CQMA272J50	C 79, 80	
CQMA682J50	C 81,212,234	
CQMA124J50	C 83	
CQMA153J50	C 84	
CQMA123J50	C 94	
CEA220M16	C 96, 97	
CCDSL331J50	C 101	
CQMA562J50	C 201	
CQMA152J50	C 202,241	
CQMA102J50	C 203	
CCDSL271J50	C 204	
CEA4R7M16NP	C 207	
CEA100M16	C 209,210	
VCG-024	C 211,213	
CQMA272J50	C 214	
CCDSL101J50	C 215	
CQMA393J50	C 224,225	
CQMA333J50	C 228	
CEA220M16NP	C 229	
CQMA222J50	C 237,238	
CEA101M16	C 239,240	
CQMA103J50	C 242	
CEA010M50	C 245	
CEAR47M50	C 246	
CQMA823J50	C 251	
VTL-096	L 1	
VTH-005	F 1- 13	

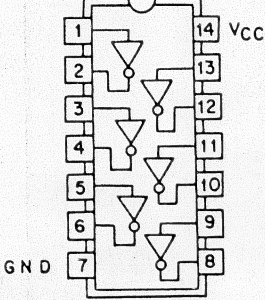
PLMP(VWY-032) Parts list		1
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
TLG123A	D 1- 4	
RD1/4PS331J	R 1	
CNBA(VWY-030) Parts list		1
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
VSF-008	SW 1	
CNBB(VWY-031) Parts list		1
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
VCN-087	R 3	220 ohm/1W

SRVB

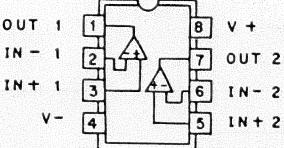
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LM393P



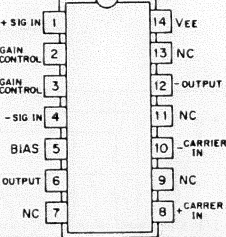
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HD74LS04P



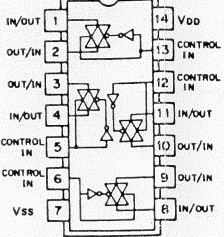
μ PC4558C
NJM4558D



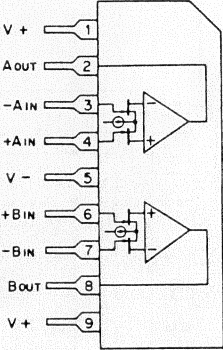
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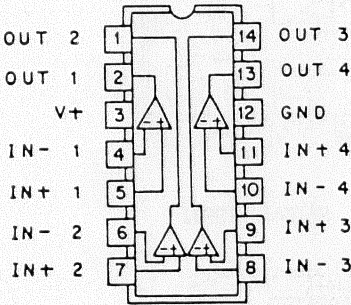
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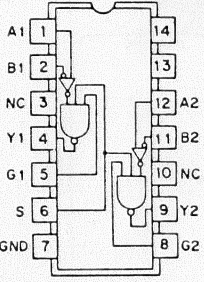
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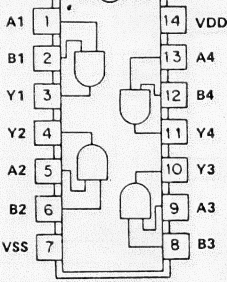
μ PC339C



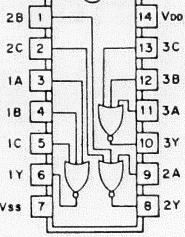
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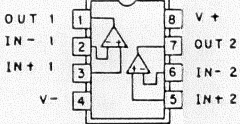
μ PC4081C



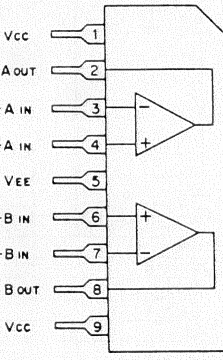
TC4025BP



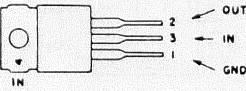
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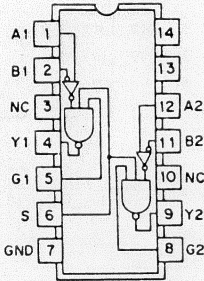
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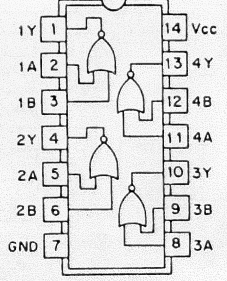
μ PC7905H



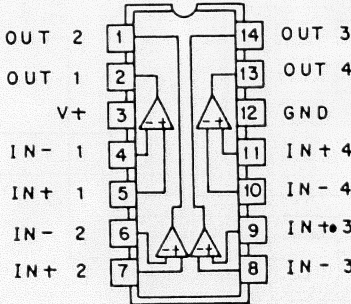
HD75107AP



HD74S02P



μ PC339C



2SK30A



2SC2060



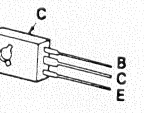
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2SC1815



2SK43



2SC2497
2SA1096



2SC1672
2SA872

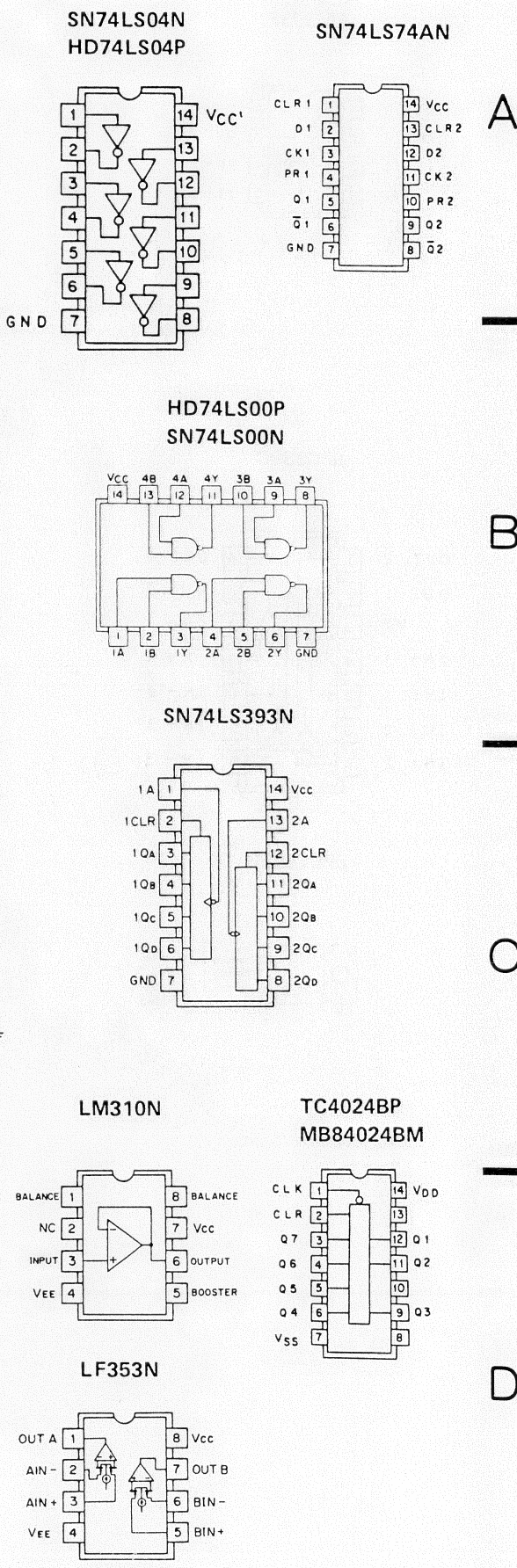
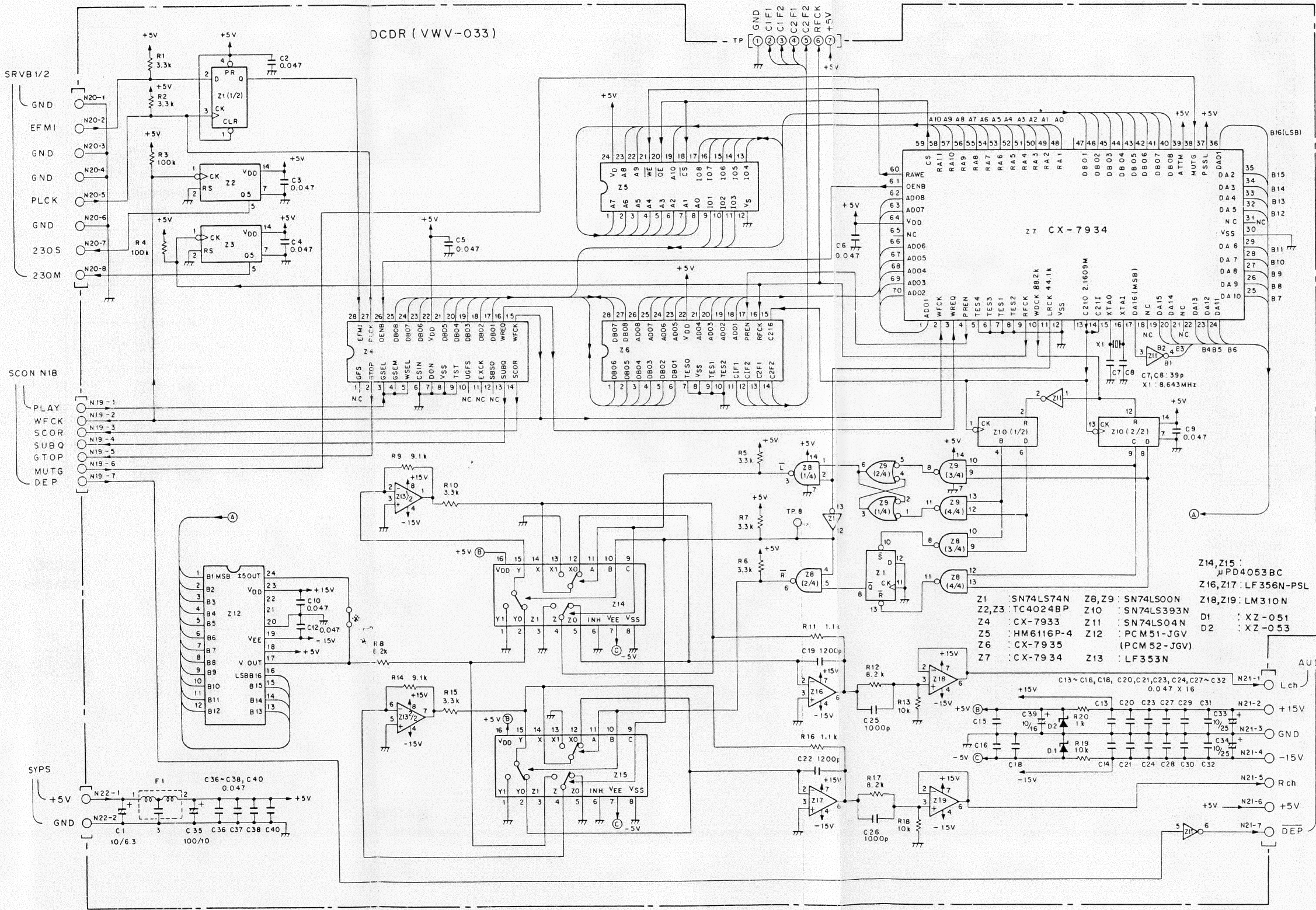


A

B

C

D



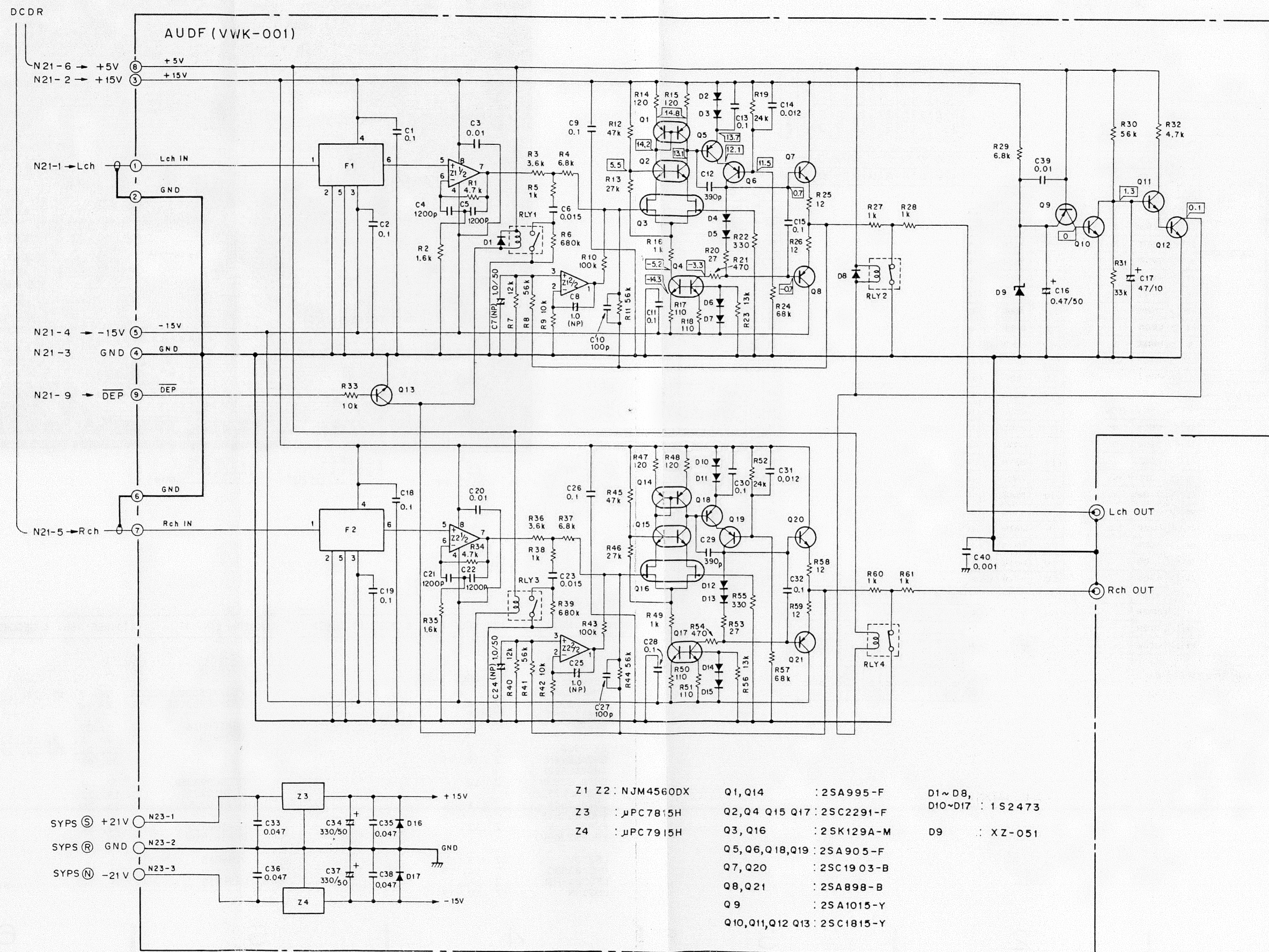
A

B

C

D

* In case of PCM51JG-V, short circuit.
In case of PCM52JG-V, open circuit.

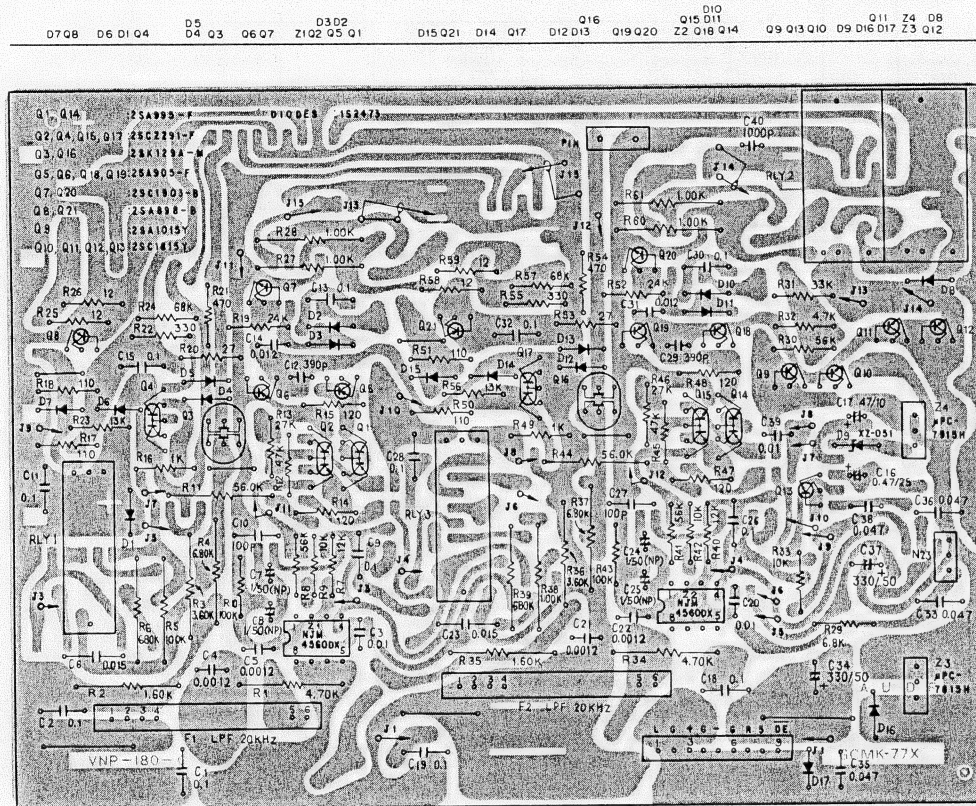


AUDF(VWK-001) Parts list

1

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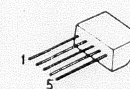
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UPC7815H	Z	3	
UPC7915H	Z	4	
2SA995-F	Q	1, 14	
2SC2291-F	Q	2, 4, 15, 17	
2SK129A-M	Q	3, 16	
2SA905-F	Q	5, 6, 18, 19	
2SC1903-B	Q	7, 20	
2SA898-B	Q	8, 21	
2SA1015-Y	Q	9	
2SC1815-Y	Q	10- 13	
1S2473	D	1- 8, 10- 17	
XZ-051	D	9	
VCN-079	R	1, 34	4700 ohm
VCN-077	R	2, 35	1600 ohm
VCN-078	R	3, 36	3600 ohm
VCN-080	R	4, 37	6800 ohm
VCN-076	R	5, 27, 28, 38, 60, 61	1000 ohm
VCN-082	R	6, 39	680 kohm
RD1/4PS000J	R	7- 10, 12- 21, 23- 26, 29- 33, 40- 43, 45- 54, 56, 57, 59	
VCN-081	R	11, 44	
RN1/4PR0000F	R	22, 55	
CQMA104J50	C	1, 2, 9, 11, 13, 15, 18, 19, 26, 28, 30, 32	
CQMA103J50	C	3, 20	
VCE-016	C	4, 5, 21, 22	
VCE-008	C	6, 23	
CEA010M50NP	C	7, 8, 24, 25	
VCF-001	C	10, 27	
CQSH391J50	C	12, 29	
CQMA123J50	C	14, 31	
CEAR47M50	C	16	
CEA470M10	C	17	
VCG-003	C	33, 36	
VCH-017	C	34, 37	
VCG-025	C	35, 38	
CKDYF103Z50	C	39	
CKDYB102K50	C	40	



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2SC1815



2SC2291
2SA995



2SA905

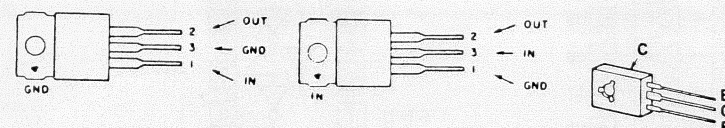


VTF-046	F	1, 2	LPF 20kHz
VSR-002	RL	1, 3	
VSR-003	RL	2, 4	

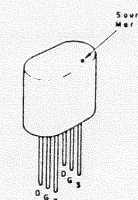
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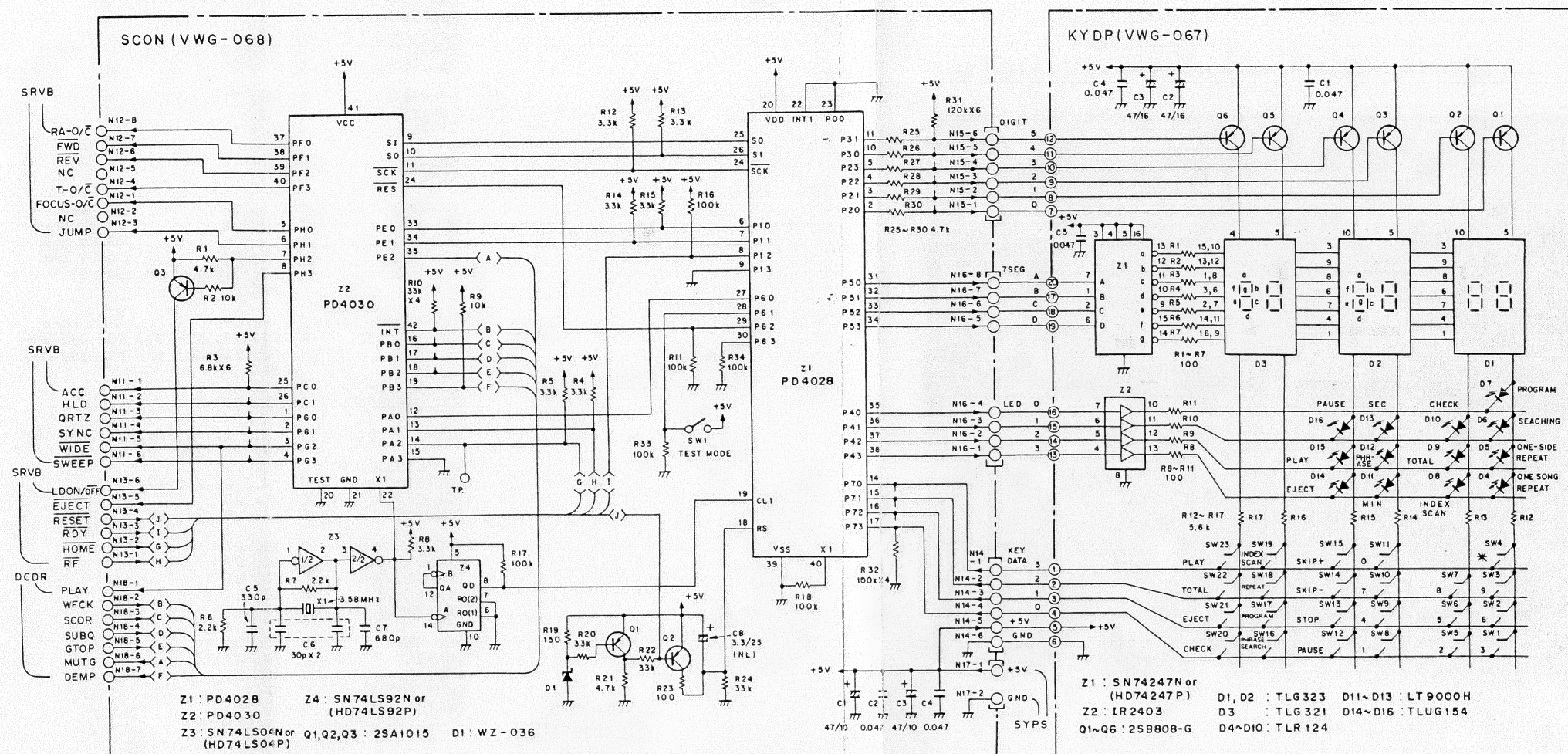
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2SC1903

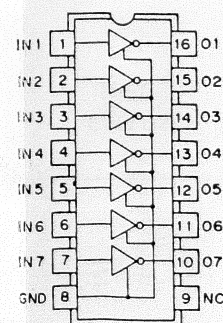
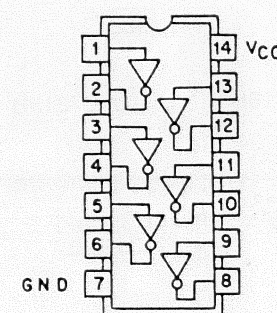


2SK129A

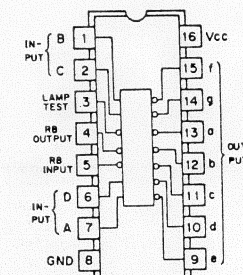




IR2403

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HD74LS04P

SN74247N

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2SC1815

2SB808

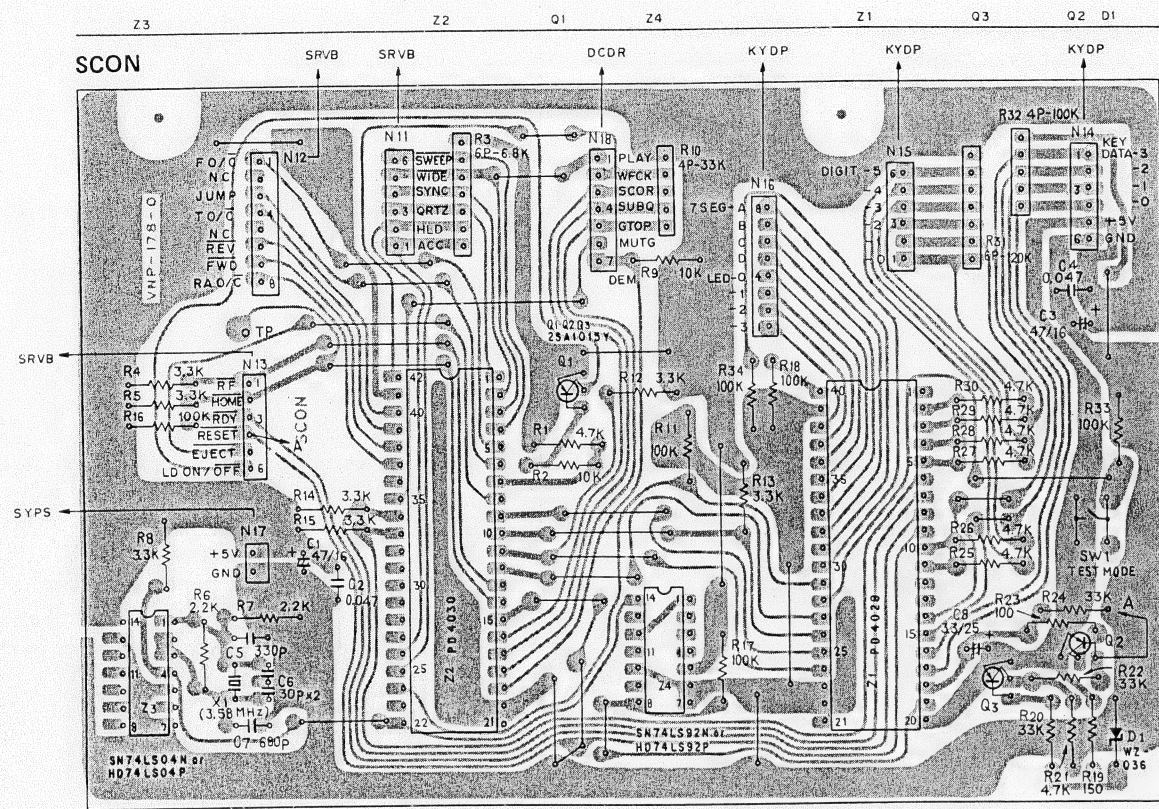


A

B

C

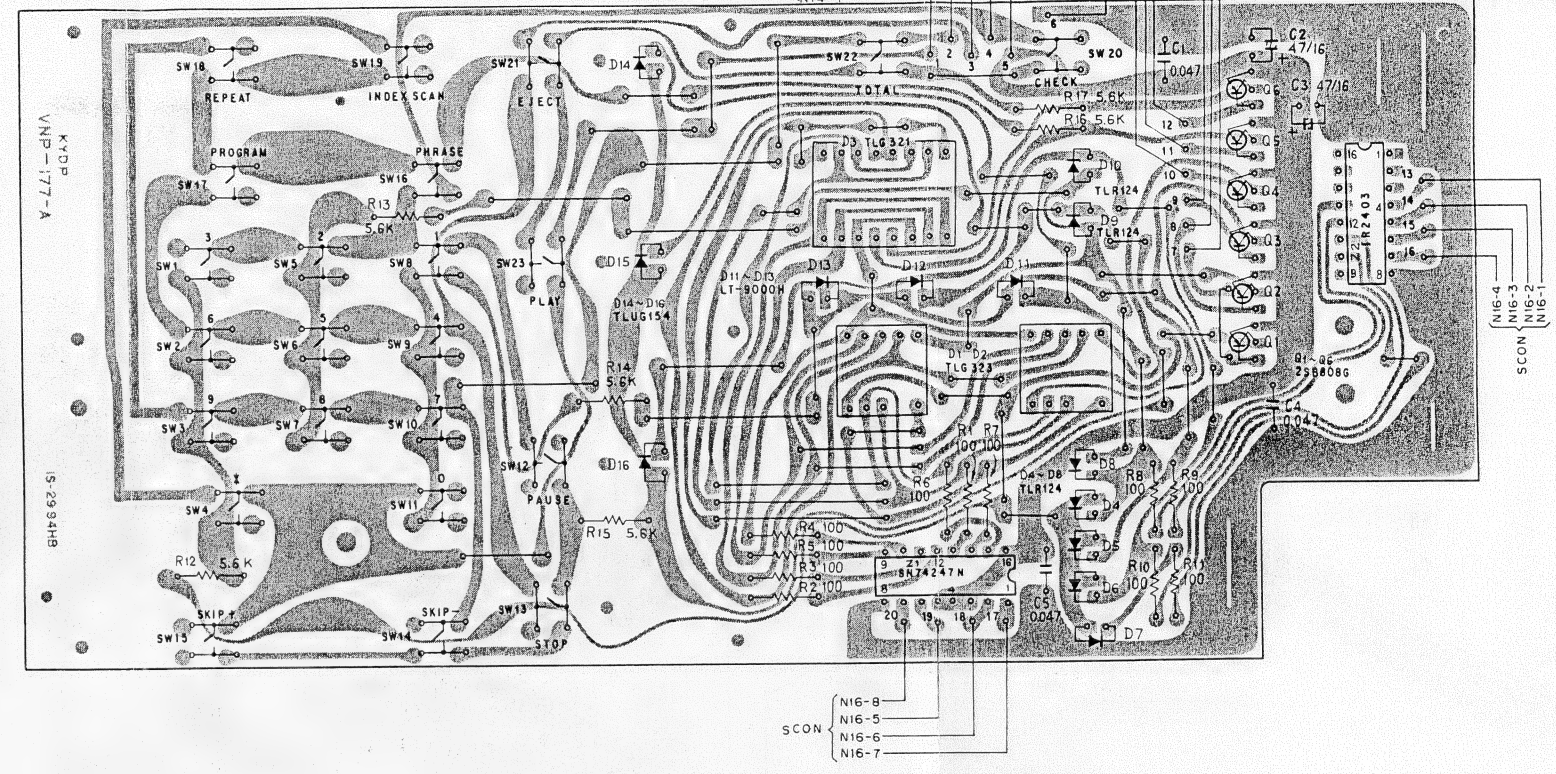
D



SCON(VWG-068) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
PD4028	Z 1
PD4030	Z 2
SN74LS04N (HD74LS04P)	Z 3
SN74LS92N (HD74LS92P)	Z 4
2SA1015-Y	Q 1- 3
WZ-036	Q 1
RD1/4PS000J	R 1, 2, 4- 9, 11- 30, 33, 34
VCN-074	R 3 6.8k 6P
VCN-072	R 10 33k 4P
VCN-075	R 31 120k 6P
VCN-073	R 32 100k 4P
CEA470M16	C 1, 3
VCG-003	C 2, 4
CCDSL331J50	C 5
CCDSL681K50	C 7
CEANL3R3M25	C 8
VSS-014	X 1 3.58 MHz
VSC-006	SW 1

KYDP

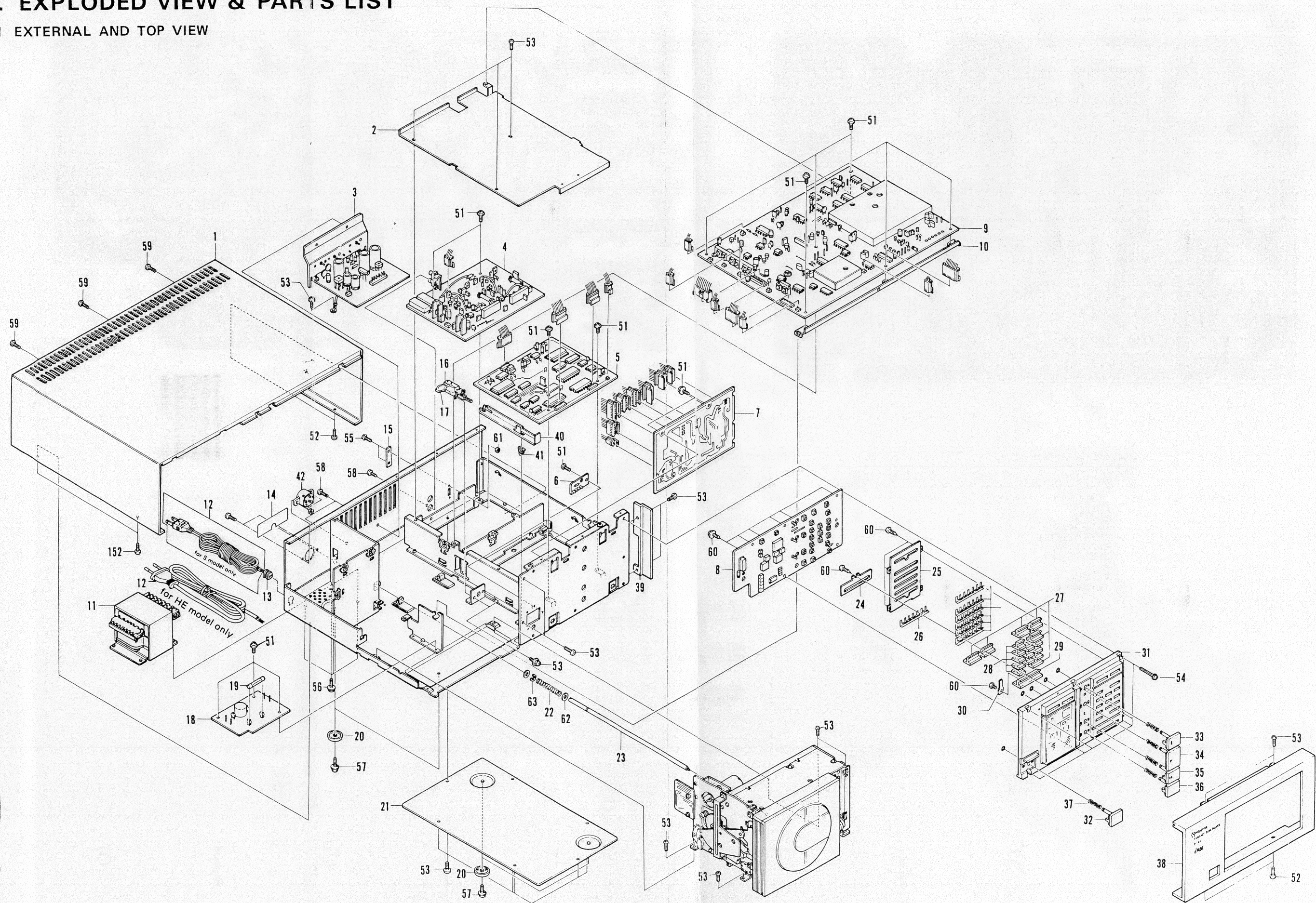


KYDP(VWG-067) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
SN74247N	Z 1
IR2403	Z 2
2SB808-E	Q 1- 6
TLG323	D 1, 2
TLG321	D 3
TLR123	D 4- 10
LT-9000H	D 11- 13
TLUG154	D 14- 16
RD1/4PS101J	R 1- 11
RD1/4PS362J	R 12- 17
VCG-003	C 1, 4, 5
CEA470M16	C 2, 3
VSC-006	SW 1- 23

6. EXPLODED VIEW & PARTS LIST

6-1 EXTERNAL AND TOP VIEW



A

B

C

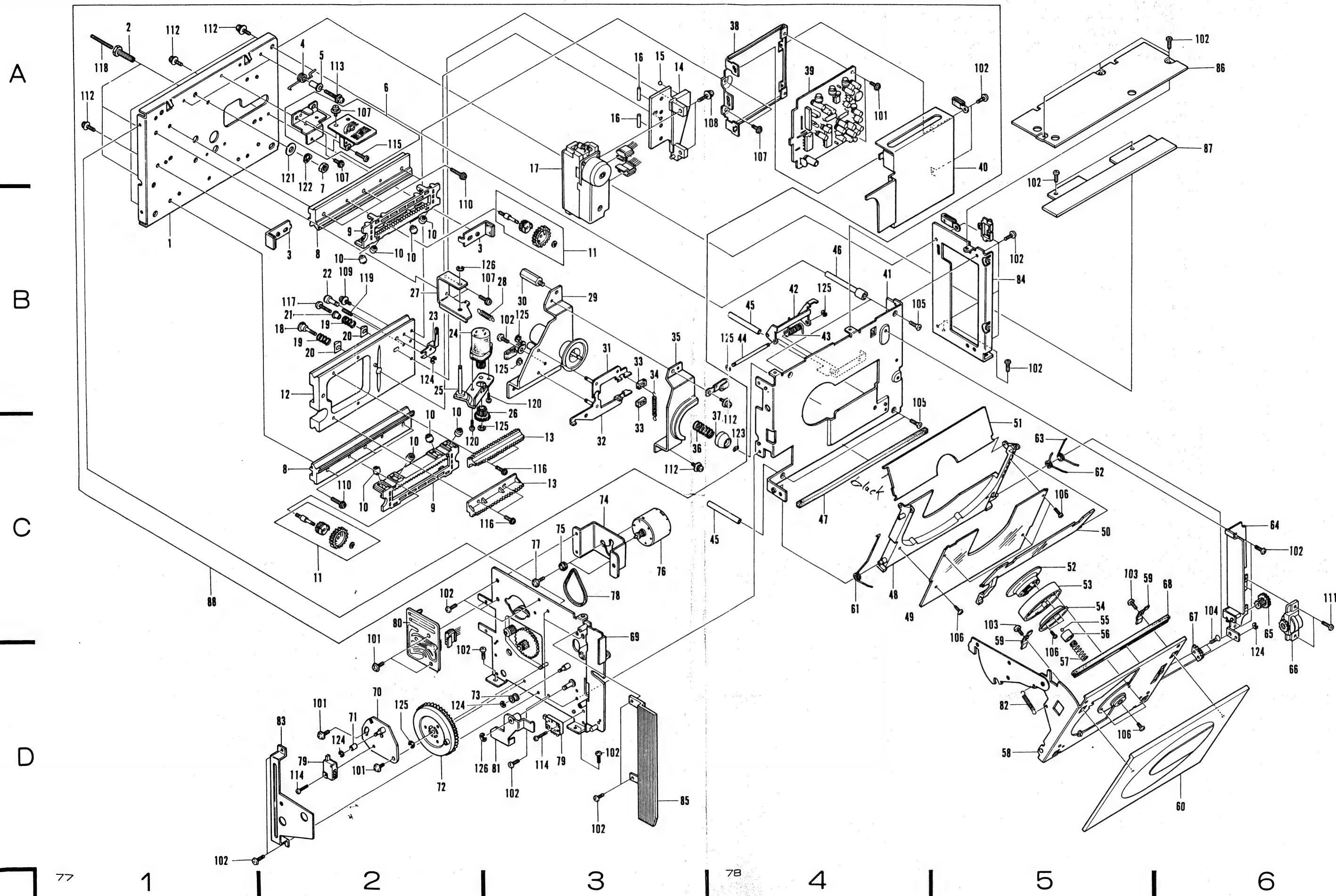
D

NOTES:

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Parts List

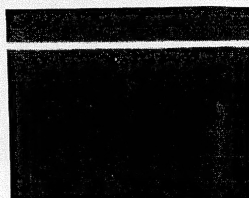
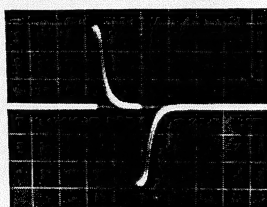
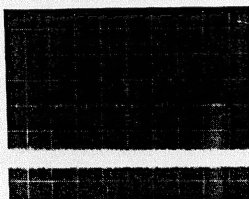
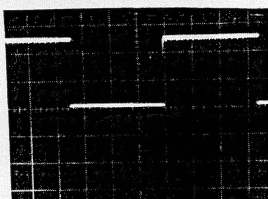
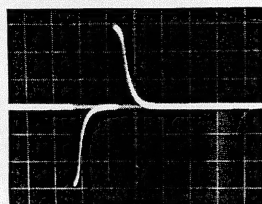
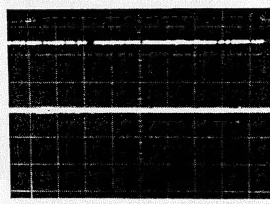
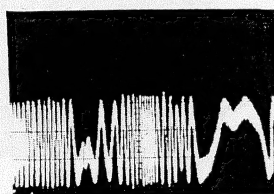
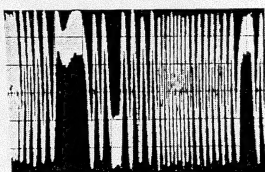
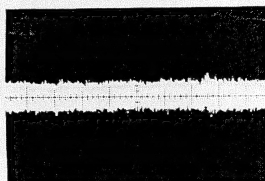
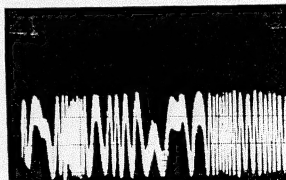
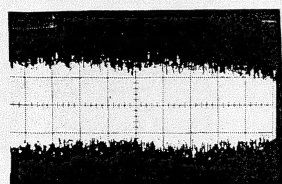
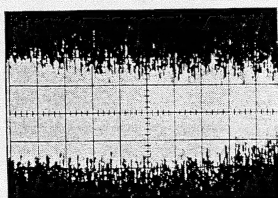
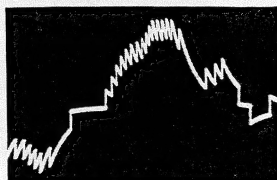
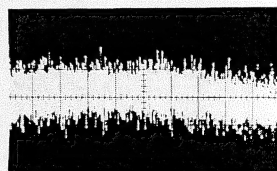
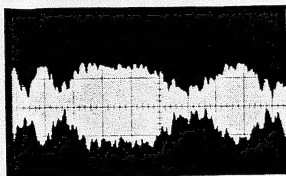
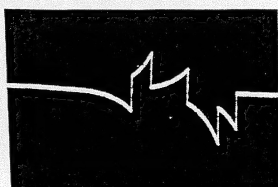
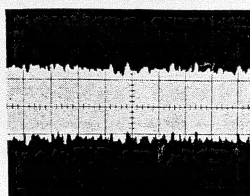
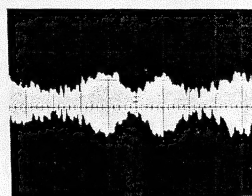
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	1.	VXA-109	Bonnet		51.	ACZ30P060FMC	
	2.		Shielding plate		52.	ACZ30P060FZK	
	3.	VWR-024	SYPS		53.	BCZ30P050FMC	
	4.	VWK-001	AUDF		54.	BCZ30P160FMC	
	5.	VWV-033	DCDR		55.	BMZ26P040FZK	
	6.	VWY-032	PLMP		56.	ICT40P080FZK	
	7.	VWG-068	SCON		57.	PMZ40P060FMC	
	8.	VWG-067	KYDP		58.	VBZ30P060FZK	
	9.	VWS-034	SRVB		59.	VBZ30P060FMC	
	10.		Angle		60.	VPZ30P060FMC	
⚠	11.	VTT-024	Power Transformer (HE model)		61.	NB26FMC	
⚠	11.	VTT-030	Power Transformer (S model)		62.	WB60FMC	
⚠	12.	VDG-011	Power cord (HE model)		63.	YE50FUC	
⚠	12.	VDG-013	Power cord (S model)		64.		
	13.	VEC-111	Cord stopper				
	14.	VRW-142	Caution label				
	15.		Plate				
⚠	16.	VSA-006	Power switch				
⚠	17.	VCG-018	Capacitor				
⚠	18.	VWR-029	LFFB				
⚠	19.	VEK-012	Fuse 250V/250mA (HE model)				
⚠	19.	VEK-013	Fuse 250V/800mA (S model)				
	20.	VNL-122	Foot				
	21.	VNE-402	Bottom plate				
	22.		Spring				
	23.		Shipping screw				
	24.	VNE-322	Plate B				
	25.	VNE-321	Plate A				
	26.	VBK-010	Leaf				
	27.	VAC-124	Button A				
	28.	VAC-126	Button C				
	29.	VAC-125	Button B				
	30.	VBK-011	Leaf				
	31.	VXX-082	Button holder				
	32.	VXA-098	POWER button				
	33.	VXA-094	EJECT button				
	34.	VXA-095	PLAY button				
	35.	VXA-096	PAUSE button				
	36.	VXA-097	STOP button				
	37.	VBH-060	Spring				
	38.	VAH-013	Front panel				
	39.	VAH-019	Escutcheon				
	40.		Joint				
	41.		Clip				
⚠	42.	VSU-001	Voltage selector (HE model)				
⚠	43.	VSU-002	Voltage selector (S model)				

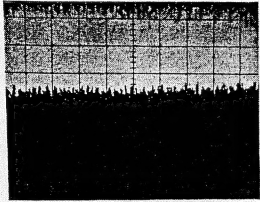
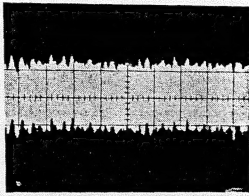
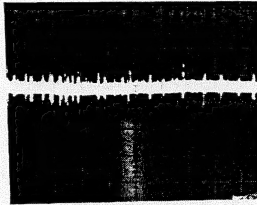
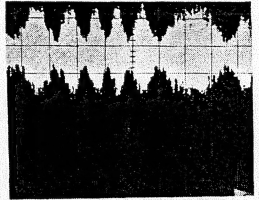
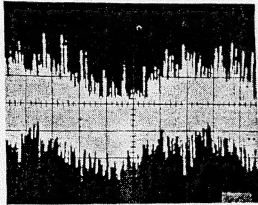
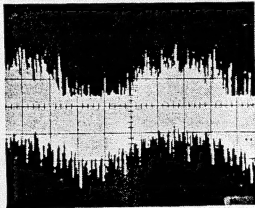
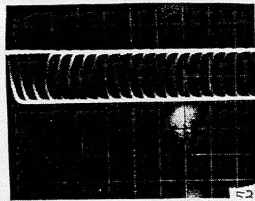
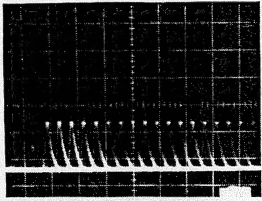
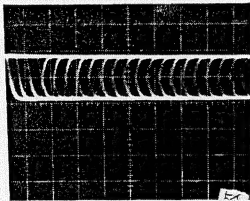
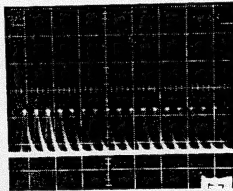
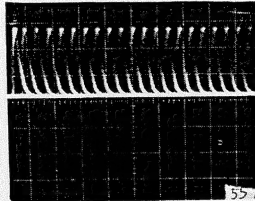
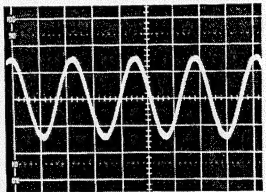
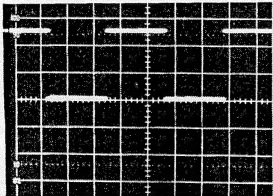
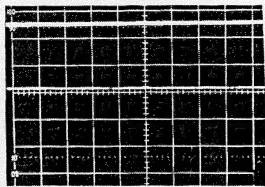
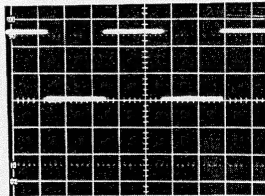
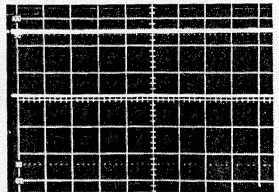
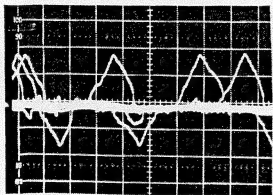
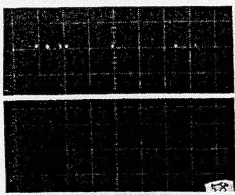
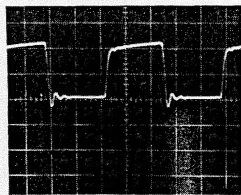
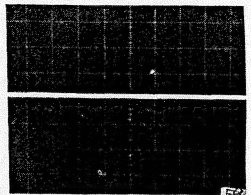


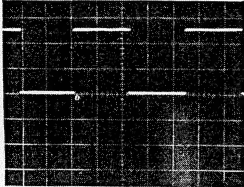
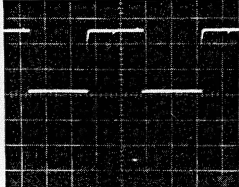
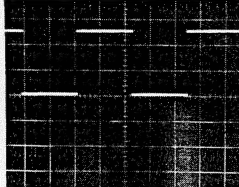
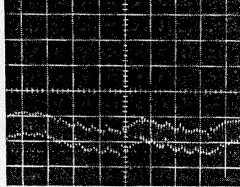
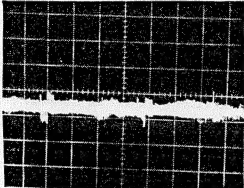
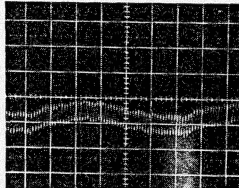
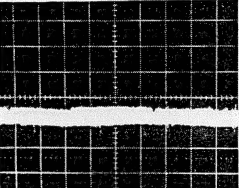
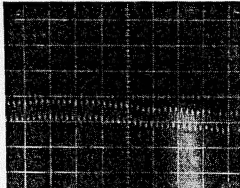
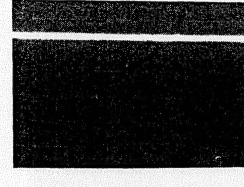
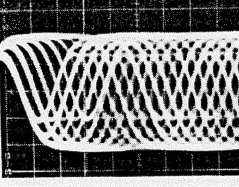
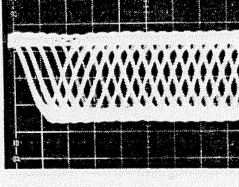
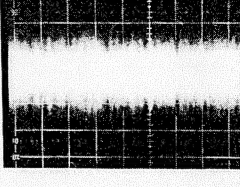
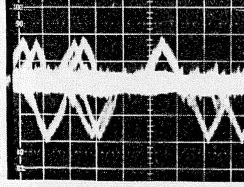
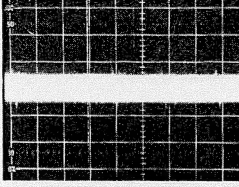
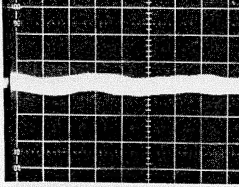
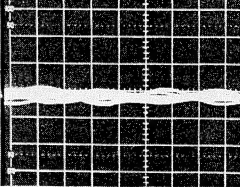
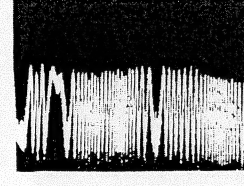
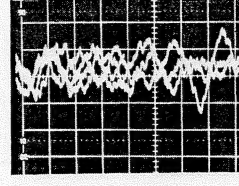

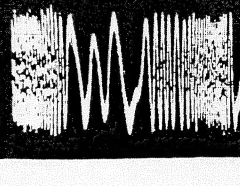
Parts List

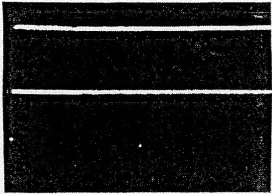
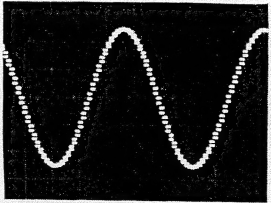
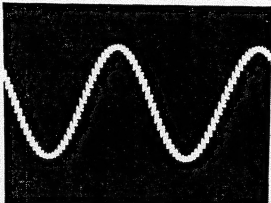
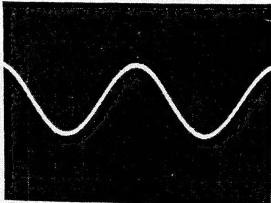
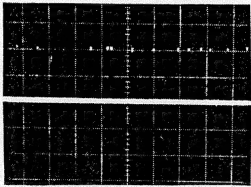
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	2.	VNE-340	Height adjustment screw		47.	VED-031	Cushion		102.	BCZ30P050FMC	
	3.		Stopper		48.	VNL-121	Holder base		103.	BMZ26P040FZK	
	4.	VBH-068	Screw		49.	VNL-126	Holder plate A		104.	CMZ20P040FZK	
	5.		Collar		50.	VNL-127	Holder plate B		105.	CMZ30P080FZK	
	6.	VWY-030	CNBA		51.	VNL-128	Holder plate C		106.	PBZ20P060FZK	
	7.	VLA-061	Nut		52.	VNL-134	Disc clasper		107.	PMA30P060FMC	
	8.	VNG-005	Rail		53.	VNL-132	Clasper holder		108.	PMA30P080FMC	
	9.	VNL-119	Retainer		54.	VNL-133	Clasper cap		109.	PMA30P100FMC	
	10.	VLL-121	Roller		55.	VNH-025	Ball		110.	PMA30P120FMC	
	11.	VXX-006	Retainer-pinion		56.	VNL-160	Bearing		111.	PMB26P060FMC	
	12.		Slider base		57.	VBH-077	Spring		112.	PMB30P060FMC	
	13.		Rack		58.		Door plate		113.	PMB30P160FMC	
	14.		Pickup holder		59.	VBH-012	Spring		114.	PMC26P100FMC	
	15.	VNH-026	Ball		60.	VXX-083	Door panel		115.	PMZ26P100FMC	
	16.	VLL-119	Bar		61.	VBH-063	Spring		116.	PMZ30P060FMC	
	17.	VGN-012	Pickup		62.	VBH-064	Spring		117.	PMZ40P180FMC	
	18.	VLL-116	Attachment screw		63.	VBH-062	Spring		118.	ZMD30H250FBT	
	19.	VBH-067	Screw		64.	VXA-091	Dumper bracket		119.	ZMK40H080FBT	
	20.	VLL-118	Spacer		65.	VNL-151	Gear		120.		
	21.	VLL-117	Collar		66.	VEC-097	Dumper		121.	WB50FMC	
	22.	VLL-120	Cam		67.	VNL-131	Rack		122.	WW50FBT	
	23.	VNE-338	Plate		68.	VNL-125	Cover		123.	YC25FBT	
	24.	VXM-023	Carriage motor		69.	VXA-086	Side frame L		124.	YE20FUC	
	25.	VXA-083	Holder		70.		Plate		125.	YE25FUC	
	26.	VNL-139	Pinion gear		71.	VNL-136	Roller		126.	YE30FUC	
	27.	VNE-345	Angle		72.	VXA-088	Gear				
	28.	VBH-072	Spring		73.	VNL-123	Pulley				
	29.	VXM-022	Spindle motor		74.		Plate				
	30.	VLL-138	Height adjustment boss		75.	VEB-042	Insulator				
	31.	VXA-085	Brake plate B		76.	VXX-117	Eject motor				
	32.	VXA-084	Brake plate A		77.	VBA-004	Screw				
	33.	VEB-040	Brake shoe		78.	VEB-043	Belt				
	34.	VBH-070	Spring		79.	VSF-009	Micro-SW				
	35.	VNE-347	Shielding cover		80.	VWY-031	CNBB				
	36.	VBH-069	Spring		81.	VXA-087	Lever				
	37.	VLL-125	Tapered wheel		82.	VBH-061	Spring				
	38.		Holder		83.		Plate				
	39.	VWV-032	HALC		84.	VNE-315	Side frame R				
	40.		Shielding case		85.	VAH-015	Escutcheon L				
	41.	VXA-090	Front frame		86.		Plate				
	42.	VBH-065	Shutter plate		87.	VAH-019	Escutcheon				
	43.	VLL-110	Spring		88.	VXX-084	Mechanism Assembly				
	44.		Bar								
	45.		Boss								

9. WAVEFORMS

9. WAVEFORMS		<p>TP207 (SRVB) Mode; Play Trkg C/L X; 0.2V/div Y; 5msec/div</p> 	<p>TP227 (SRVB) Mode; Jump Rev X; 20mV/div Y; 0.2msec/div</p> 
<p>TP208 (SRVB) Mode; Play Trkg C/L X; 20mV/div Y; 10msec/div</p> 	<p>WFCK Mode; Play X; 0.2V/div Y; 20μsec/div</p> 	<p>TP227 (SRVB) Mode; Jump Fwd X; 20mV/div Y; 0.2msec/div</p> 	<p>N19-5 Mode; Play Trkg O/L X; 0.2V/div Y; 2msec/div</p> 
<p>TP208 (SRVB) Mode; Play Trkg O/L X; 20mV/div Y; 10msec/div</p> 	<p>TP210 (SRVB) Mode; Play Trkg O/L X; 0.1V/div Y; 10msec/div</p> 	<p>TP210 (SRVB) Mode; Play Trkg C/L X; 0.1V/div Y; 10msec/div</p> 	<p>TP209 (SRVB) Mode; Play Trkg O/L X; 20mV/div Y; 10msec/div</p> 
<p>TP212 (SRVB) Mode; Play Trkg C/L X; 20mV/div Y; 10msec/div</p> 	<p>TP215 (SRVB) Mode; Play Trkg O/L X; 0.1V/div Y; 10msec/div</p> 	<p>TP222 (SRVB) Mode; Play Trkg O/L X; 5mV/div Y; 10msec/div</p> 	<p>TP216 (SRVB) Mode; Play Trkg C/L X; 20mV/div Y; 10msec/div</p> 
<p>TP227 (SRVB) Mode; Play Trkg O/L X; 20mV/div Y; 2msec/div</p> 	<p>TP222 (SRVB) Mode; Play Trkg C/L X; 20mV/div Y; 10msec/div</p> 	<p>TP227 (SRVB) Mode; Play Trkg C/L X; 10mV/div Y; 2msec/div</p> 	<p>TP229 (SRVB) Mode; Play Trkg O/L X; 2mV/div Y; 2msec/div</p> 

<p>TP230 (SRVB) Mode; Play Trkg C/L X; 10mV/div Y; 2msec/div</p> 	<p>TP229 (SRVB) Mode; Play Trkg C/L X; 2mV/div Y; 2msec/div</p> 	<p>TP231 (SRVB) Mode; Play Trkg C/L X; 2mV/div Y; 2msec/div</p> 	<p>TP230 (SRVB) Mode; Play Trkg O/L X; 10mV/div Y; 2msec/div</p> 
<p>TP232 (SRVB) Mode; Play Trkg O/L X; 10mV/div Y; 20msec/div</p> 	<p>TP232 (SRVB) Mode; Play Trkg C/L X; 10mV/div Y; 20msec/div</p> 	<p>TP9 (SRVB) Mode; Play Trkg C/L X; 0.2V/div Y; 0.5μsec/div</p> 	<p>TP1 (SRVB) Mode; Play Trkg C/L X; 0.2V/div Y; 0.5μsec/div</p> 
<p>TP10 (SRVB) Mode; Play Trkg C/L X; 0.2V/div Y; 0.5μsec/div</p> 	<p>TP2 (SRVB) Mode; Play Trkg C/L X; 0.2V/div Y; 0.5μsec/div</p> 	<p>TP11 (SRVB) Mode; Play Trkg C/L X; 0.1V/div Y; 0.5μsec/div</p> 	<p>TP6 (SRVB) Mode; Play X; 50mV/div Y; 0.1μsec/div DC; 4V</p> 
<p>TP19 (SRVB) Mode; Play X; 0.2V/div Y; 1msec/div</p> 	<p>TP17 (SRVB) Mode; Play X; 0.2V/div Y; 10msec/div</p> 	<p>TP20 (SRVB) Mode; Play X; 0.2V/div Y; 1msec/div</p> 	<p>TP18 Mode; Play X; 0.2V/div Y; 10msec/div</p> 
<p>TP21 (SRVB) Mode; Play Trkg O/L X; 50mV/div Y; 5msec/div</p> 	<p>TP16 (SRVB) Mode; Play Trkg O/L X; 0.2V/div Y; 20msec/div</p> 	<p>N20-5 (SRVB) Mode; Play X; 0.2V/div Y; 50msec/div</p> 	<p>TP16 (SRVB) Mode; Play Trkg C/L X; 0.2V/div Y; 20msec/div</p> 

<p>230S (SRVB) Mode; Play X; 0.2V/div Y; 1msec/div</p> 	<p>TP8 (DCDR) Mode; Play X; 0.2V/div Y; 5μsec/div</p> 	<p>230M (SRVB) Mode; Play X; 0.2V/div Y; 1msec/div</p> 	<p>TP24 (SRVB) Mode; Play X; 0.1V/div Y; 20msec/div</p> 
<p>TP202 (SRVB) Mode; play Trkg C/L X; 0.1V/div Y; 5msec/div</p> 	<p>TP25 (SRVB) Mode; Play X; 0.1V/div Y; 20msec/div</p> 	<p>TP203 (SRVB) Mode; Play Trkg C/L X; 0.1V/div Y; 5msec/div</p> 	<p>TP25 (SRVB) Mode; Play X; 0.1V/div Y; 10msec/div</p> 
<p>TP207 (SRVB) Mode; Play Trkg O/L X; 0.2V/div Y; 5msec/div</p> 	<p>TP12 (RF) (SRVB) Mode; Play X; 5mV/div Y; 0.5μsec/div</p> 	<p>TP13 (SRVB) Mode; Play X; 0.1V/div Y; 0.5μsec/div DC; 6.0V</p> 	<p>TP7 (DL) (SRVB) Mode; Play Trkg O/L X; 50mV/div Y; 2msec/div</p> 
<p>TP4 (SRVB) Mode; Play X; 50mV/div Trkg O/L DC; 5.5V Y; 5msec/div</p> 	<p>TP7 (DL) (SRVB) Mode; Play Trkg C/L X; 50mV/div Y; 2msec/div</p> 	<p>TP4 (SRVB) Mode; Play X; 50mV/div Trkg C/L DC; 5.5V Y; 5msec/div</p> 	<p>TP21 (SRVB) Mode; Play Trkg C/L X; 50mV/div Y; 5msec/div</p> 
<p>TP203 (SRVB) Mode; Play Trkg O/L X; 50mV/div Y; 10msec/div</p> 	<p>TP23 (SRVB) Mode; Play X; 20mV/div Y; 10msec/div</p> 	<p>TP205 (SRVB) Mode; Play Trkg O/L X; 0.2mV/div Y; 2msec/div</p> 	<p>TP202 (SRVB) Mode; Play Trkg O/L X; 0.1V/div Y; 10msec/div</p> 

<p>TP205 (SRVB) Mode; Play Trkg C/L X; 0.2mV/div Y; 2msec/div</p> 	<p>Z12-17 (DCDR) 1kHz Test Mode; Playing Signal X; 0.2V/div Y; 0.2msec/div</p> 	<p>DCDR OUT (Lch) 1kHz Test Mode; Playing Signal X; 50mV/div Y; 0.2msec/div</p> 	<p>Line Out 1kHz Test Signal Mode; Playing X; 0.2V/div Y; 0.2msec/div</p> 
<p>TP15 (SRVB) Mode; Play Trkg O/L X; 0.2V/div Y: 20msec/div</p> 	<p>TP15 (SRVB) Mode; Play Trkg C/L X; 0.2V/div Y; 20msec/div</p> 